

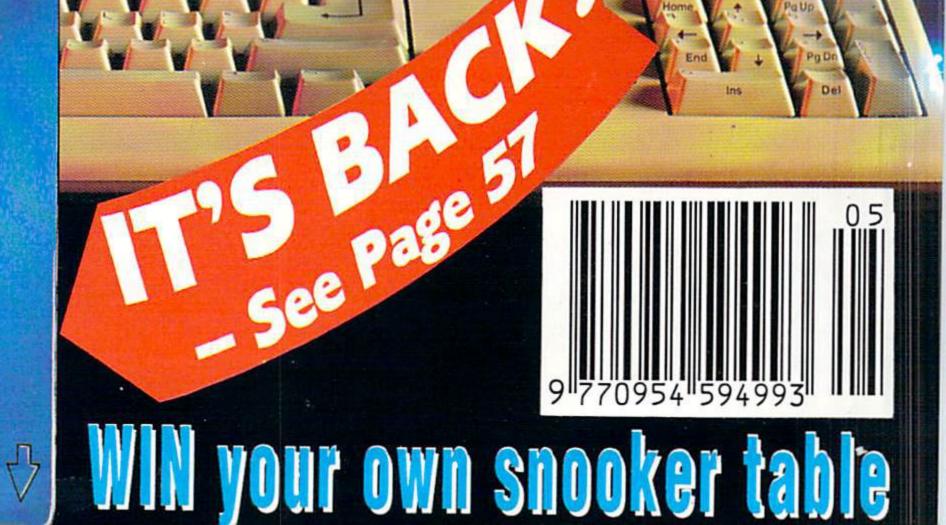


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All instructions are in the May issue of Amiga Computing





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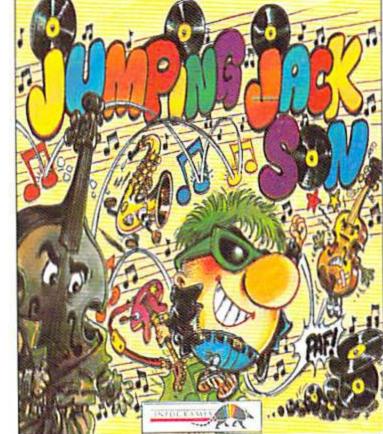
As quick as a flash, find out the "timeless classic", the "golden oldie", the records which made Rock'n'Roll. And, of course, the first 45 cut by the King himself, Elvis Presley. All these records must be placed where they belong... THE JUKE BOX.

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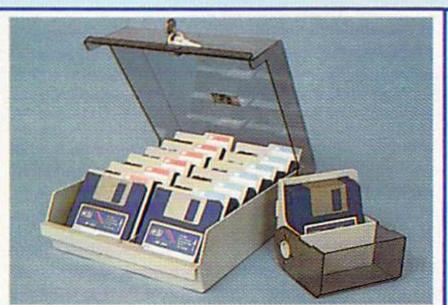
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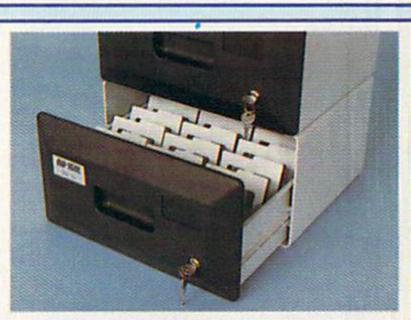


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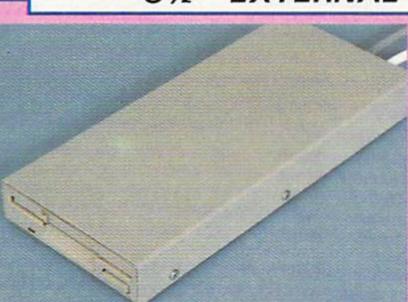
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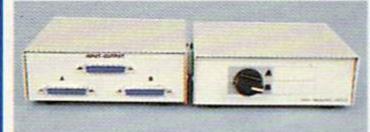
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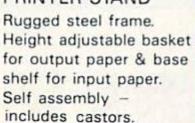
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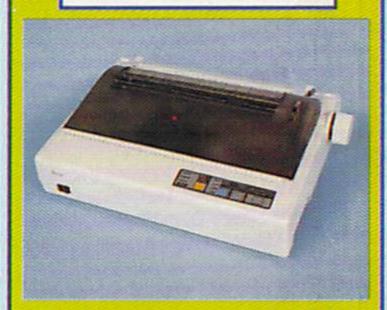


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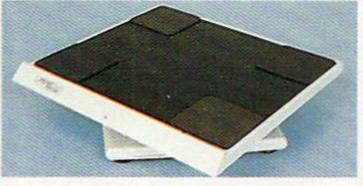
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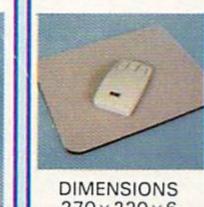
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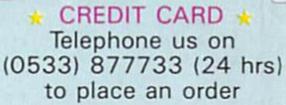
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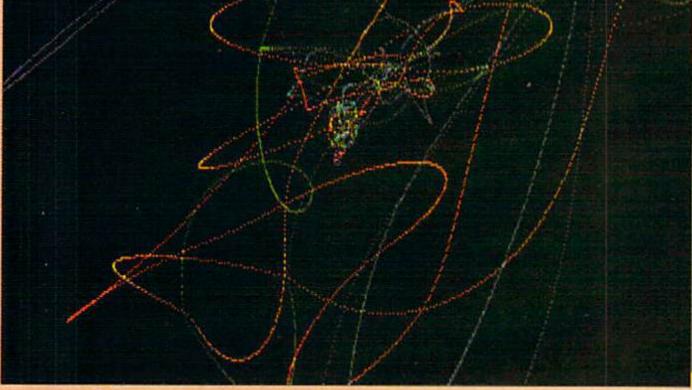
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first computer shopper show attracted over 27,500 visitors in three days. doesn't mean a great deal p because as just ano rather than his own wits, Opus somen puede gid no sieot lide ohw to the corporate buyer office clone maker. And, -un isul si sudo 'moia jo / rom the corporate point COMPLTER SHOPPER JANUARY 1990

then mond how to are experience declining interest? Quite simply the Computer Show formula. demand. And what led to this runaway success, at a time when most computer shows Over 3,000 people had to be turned away on the last day due to totally overwhelming

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Software, Silica Shop, Tynesoft and Mindscape. of the 1989 show has been reserved by companies that include Amstrad, G.S.T. of visitors and a record amount of money spent. Already more than the total floor area December 1990, at Wembley, we intend to break even more records. A record number and will be backed by an even larger visitor promotion budget. From 6th to 9th

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AMIGA SCENE

Ami-Expo comes to London

AMIGA owners will have a rare treat in store early next year when Ami-Expo, the giant American exhibition aimed purely at the Amiga market, will be recreated in London.

Contrary to reports in other sectors of the computer press, Ami-Expo is not coming to London in September this year. As Amiga Computing went to press a spokesman in America scotched rumours of a 1990 event and unveiled the true plans of organisers Ami-Show.

From his offices in Denver, Colorado, Ami-Show spokesman Erich Stein revealed exclusively that the exhibition will be held at Olympia from February 7 to 12 next year.

"A firm decision to bring Ami-Expo to London has just been made", he said. "It will be called Amiga '91 and will follow roughly the same pattern as the highly successful shows which have been staged here in America.

"Ami-Expos attract pre-

mier exhibitors on the Amiga front and through Amiga '91, we aim to provide users in the UK with a top industry event which will be a must for anyone wanting to see the lastest developments in the Amiga world".

For users who are willing to travel, it has also been revealed that Ami-Show is continuing its drive into the European market with two other events on this side of the Atlantic. Both under the Ami-Expo banner, these will be in Basle, Switzerland from May 10 to 13 and at the Cologne Convention Centre, West Germany from November 8 to 12.

In America, Ami-Expos are planned at the Hyatt Regency, Chicago from June 29 to Jul 1 and at the Disneyland Hotel, Anaheim, California from October 5 to 7 following the latest event which was held at the Sheraton, Washington DC from March 16 to 18.

view to the south at an ele-

vation of approximately 30

degrees".

Double Dutch

DUTCH company US Action has now set up a UK subsidiary which has launched two new products for the Amiga.

Deluxe Paint Tutorial is a software-based instruction course which aims to help Amiga users get the best out of animation and paint packages for their machines. Released in English, German, French and Dutch, it costs £29.95.

Also newly launched by US Action (01-977 8225) is its Light Phaser Action pack which includes a light gun and two games for £49.95.

In addition to software products, US Action sells a range of disc drives, hard discs, ram cards, sound digitisers, midi interfaces and add-on cards for the Amiga.

16 bit showcase

FOLLOWING the launch of the 16 Bit Computer Fair in January, plans are under way for a summer event to be held at The Royal Horticultural Halls, London from June 28 to July 1.

Organisers Westminster Exhibitions reported strong interest and claimed that only 10 stands were unfilled.

Similar to the January show, it will be a mixture of retailers, publishers and manufacturers supplying the Amiga and Atari ST markets.

Ion out a problem

DIZZINESS, headaches and eyestrain are ailments which could befall Amiga buffs who spend too long staring at their screens.

Recently formed company Joy of Life Arts (0695 32382) claims to have the remedy with its Mountain Breeze computer ioniser.

To counteract the static generated by the screen and eliminate unwated dirt, smoke or bacteria attracted by it, the device sits on top of the monitor and gives out "an enlivening stream of negative ions" to restore the ion balance.

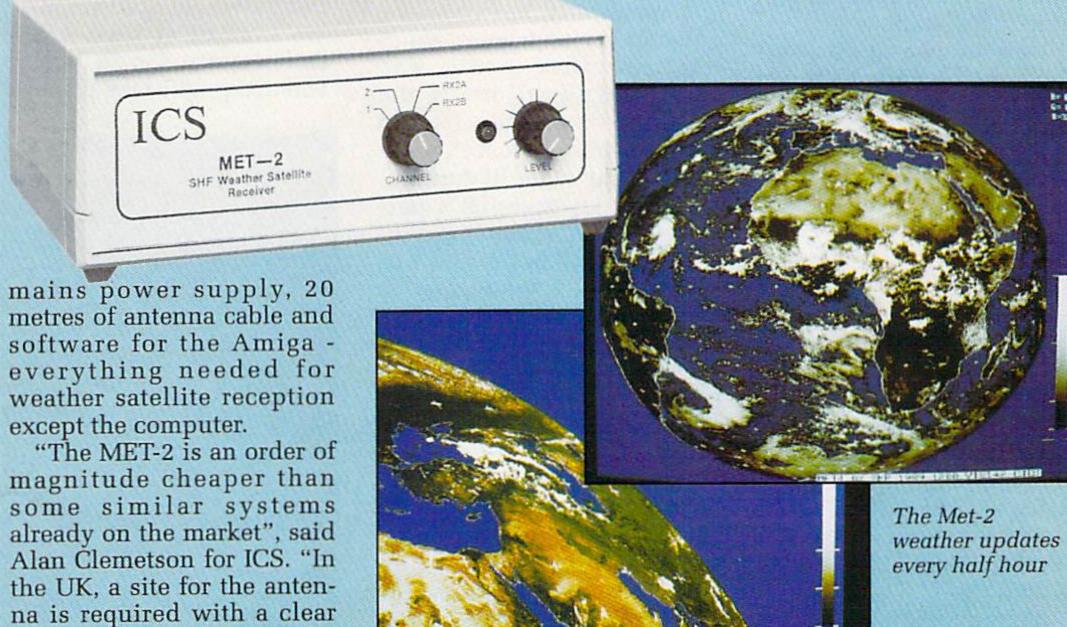
It needs a mains supply of 220/240 volts with power consumption of two watts. With a two-year guarantee, the unit costs £29.95.

Meteosat connection

AMIGA owners who want to use their machines as home weather stations are now being offered a new system which developer ICS Electronics (0903 731101) claims is a price breakthrough.

Weighing in at £689.95, it can receive weather pictures directly from the European Meteosat 4 satellite situated over the equator and the Greenwich Meridian.

Full-colour detailed cloud cover of Europe is updated in high resolution every half hour by the MET-2 system which includes a receiver and pre-amplifier, a three metre long Yagi antenna, a



Autumn launch for CD-rom

COMMODORE'S rumoured CD-rom games machine based on the Amiga will be launched in August or September this year, it has been revealed to Amiga Computing.

According to the trade sources a prototype of the games console fitted with a CD-rom unit was previewed to an elite few at the recent Consumer Electronics Show in Las Vegas. A spokesman

said: "We believe it will be the end of the summer or start of autumn before it comes out. No information is available at present but we expect it to be launched in August or September".

Non-disclosure agreements have had to be signed by anyone viewing the prototype, and the official line is that price and full specifications have not yet been finalised. It is understood, however, that a number of leading software publishers have been approached by Commodore with a view to developing games on compact disc.

Because of the cost involved in this new technology, it is expected that the machine could weigh in at a hefty £500, and the first public showing could be at the June CES in Chicago.

Meanwhile, French com-

pany Titus has produced its first compact disc-based game.

Called Titan, it has been developed on a Mac II with the CD Amiga console in mind using Sony's CD-I (compact disc interactive) technology which provides greatly increased memory potential for developers plus excellent graphics, sound effects and music for players.

Auto-boot on tap

NEW enhancements for the original Commodore Amiga hard disc controller have been announced by Amiga Centre Scotland (031-557 4242).

The Combitec turbo autoboot card is an add-on for the A2090 controller which will not normaly autoboot and the Turbo Chip Set for the A2090 A.

Both are designed to eliminate problems associated with the original controller software. They offer Amiga 2000 owners with old hard-drive controllers full autoboot directly from FastFile System, double the speed with ST 506 drives, automatic SCSI drive ID and easy installation.

New mouse-driven software comes with both card and chip set. Price of the card is £59. At time of going to press, no price had been fixed for the chip set.

3D game goes online

HERALDING the birth of a whole new concept for multi-user games, Bloodstone is now up and running exclusively on electronic communications service MicroLink (0527 67585).

Already drawing a large following, it has notched up a number of firsts in the world of multi role-play adventures.

Bloodstone is the first 24 hour, none re-set game of its kind and the first to offer total freedom of movement in three dimensions.

Up to 256 players can take part combining loving, killing, buying and selling in an environment which can be constantly changed.

Realistic combat routines rise above the fighting in other games not relying solely on strength. Dexterity, help from other characters, weapon and armour strength are taken into account to give battle a whole new dimension.

Other new features include buying and selling, a peer facility allowing players to see great distances, a think command so players can communicate telepathically, use of spells, the ability to teleport yourself to other levels, and polymorph, allowing the player to change from a human into an insect, monster or any other lifeform.

"It is an escapist's paradise", said project co-ordinator for Bloodstone Ltd Tony Cox. "If you wanted to you could practically live your life within the game, escaping from the real world, meeting other people and taking on a completely new character".

Devised by author Rob Muir, Bloodstone covers 14 levels, with players aiming to rise to the rank of Lord. There is no surcharge for MicroLink subscribers who play during the day but a charge of 3p a minute is levied after 6pm.

SOS for games buffs

NOW here this! A bunch of Amiga Computing readers are holding a 30 hour computation in an attempt to raise more than £1,000 for Rochford Hospital Special Baby Care Unit.

The industry has already responded favourably, with companies such as Electronic Arts, Mirrorsoft, Mindscape, CDS and Thalamus chipping in loads of games.

But what organiser Neil Mansell needs more than anything else is more people to play those games.

To qualify you must be about 15 to 16 years old, willing to use your own computer, get sponsored to the tune of at least £150, and stay up for 30 hours. The event will take place at

Canvey Island, Essex, on May 26 from 9am on Saturday through to 3pm on Sunday. So if you've got nothing to do that weekend and fancy a good long waggle, get in touch with Neil pronto. Write to him at 53 St. Marks Road, Canvey Island, Essex, SS8 9NJ.

Who knows, you may even get your picture in the papers!

Brighter displays

ALLOWING up to eight monitors to be connected to a single computer, the new Multidat RGB distribution amplifier from Interactive Media Resources (0902 25444) is the latest product to put the Amiga at the centre of professional video

Power boost

AMIGA 500 owners who want to run MSdos software on their machines and increase memory up to 1.5Mb do not have long to wait. Latest news from Dutch developer KCS is that its eagerly anticipated PC Power Board is poised to go into full production and should be available in the UK during May.

As Amiga Computing went to press Jack Kaufman, of UK distributor Bitcon Devices, reported: "The first prototype of the board is nearly finished and when it is, KCS will make 100 available. If field tests prove it is OK, the company will go into heavy production by the end of April".

Offering PC emulation, the new board is aimed at serious Amiga 500 users who want to stay with the machine's graphic, musical and animation potential, but feel it has insufficient memory and is not adequately served by professional software.

Based around an NEC V30 processor running at applications. Making a whole new range of facilities possible, Multidat uses RGB instead of video.

This means that graphics can be distributed down long lengths of cable without the degrading effects associated with video signals. This means that high resolution screens retain their clarity and colour detail.

The distribution amplifier is aimed at such applications as public information, advertising systems in shops and shopping arcades, bus stations, exhibitions and for teaching in both classrooms and lecture theatres.

There are two models, the basic Multidat with four outputs and the Multidat Plus with eight. Multidat costs £175 plus £5 carriage, Multidat Plus costs £300 plus £6 carriage. Scart output leads cost £5 each.

Sequencer upgraded

AN upgrade of the popular KCS Midi sequencer has been launched by Dr.T Music Software and is being distributed in the UK by MCM (01-724 4104).

In addition to a host of standard, real-time and editing features, version 3.0 has improved AutoMix capabilities which include 16 channel banks of graphic sliders, realtime display, and generation of any Midi

Way to the skies

FOLLOWING the news that the Civil Aviation Authority is using Amigas to train pilots, the editor of a leading aviation magazine has added to the growing belief that home flight simulators should no longer be perceived purely as games.

David Oliver, editor of Airforces Monthly, believes that they can be a good starting point for budding pilots.

"Some of these products provide a strong educational basis on how to fly an aircraft", he said. "They even give an excellent insight into the workload and complexities of flying something as sophisticated as the F16 - the world's leading fighter plane".

His comments appeared in the March issue of his magazine, a respected title in the aircraft industry.

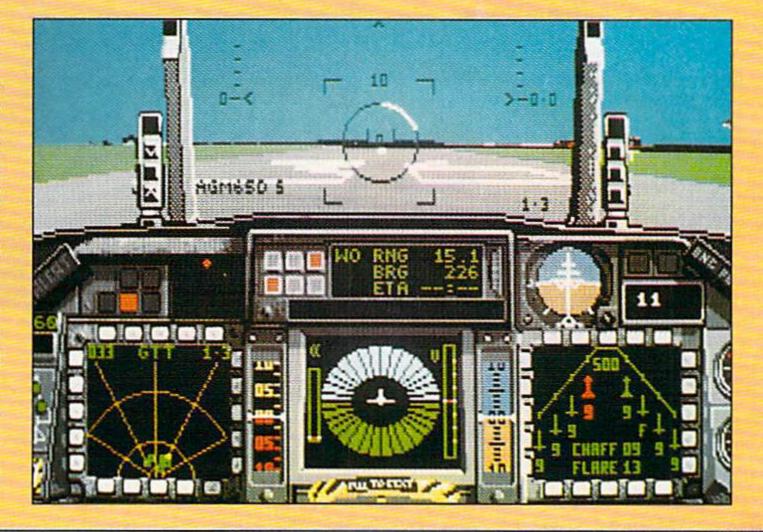
F16 Combat Pilot simulator, from Digital Integration, is typical of the new generation of "games"

which have impressed the flying fraternity. Head of Digital Integration, Dave Marshall is himself a design engineer with experience on military flight smulators used to test some of the most sophisticated aircraft.

"We had more than five people working on F16 Combat Pilot solidly for two years", he said. "We endeavoured to make the game as realistic as possible and it

has received much praise from airmen, including many former RAF pilots.

"A major sector of our market is boys in their early and midteens. We believe that the popularity of games such as F16 will increase the number of people whose ambition it is to be a pilot and at the same time improve both their aptitude and understanding of what it is like to fly a jet fighter".



controller or program change, VU meters to show Midi activity and output mixers to KCS or Midi.

It runs standalone as a Midi monitor or fully integrated in MPE, sends snapshots of Midi data and includes a SoundCheck feature for setting up Midi systems or troubleshooting. Price, £79.95. However, for the amateur musician who aspires to produce professional sounds, the Tiger Cub 12 track sequencer, which has proved popular on the Atari ST, is now available for the Amiga. Its features include graphic editing, score writing, print out, loop recording, one step object-oriented editing and a built-in conductor track. Price £99.

MCM was hoping to join with Commodore UK to reproduce on this side of the Atlantic an Amiga music bundle which has been launched in America through an alliance between Dr.T and Commodore US.

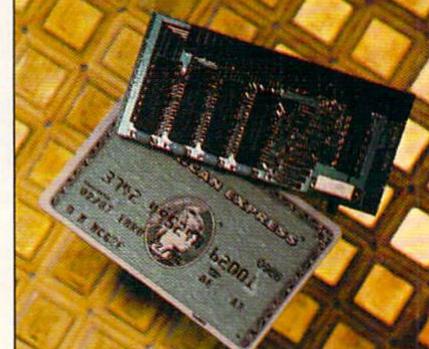
Including an A2000 with the KCS 3.0 sequencer, score writing package Copyist Apprentice and software, the American bundle has proved popular with Amiga music makers.

Mike Partridge of MCM said that the package was under negotiation with Commodore.

That will do nicely

Expansion MEMORY Systems (051-236 0480) has brought out a new credit card-sized expansion board for the Amiga 500, claimed to be the smallest board on the market.

Providing 0.5Mb of extra memory, it is just four centimetres wide and is supplied with a 1Mb demo specially designed by a leading software development house. Price, £55.



for the 500

7.14 MHz, the board is small enough to be installed easily into the A501 expansion slot beneath the machine without loss of guarantee.

It has an on board battery-backed clock and ram chips supporting both Amiga and PC with an extra 0.5Mb each. Phoenix Bios ensures MSdos compatability.

In MSdos mode the board offers 705k of avail able memory with a further 64k by using an Extra Memory Space Driver. In

Amiga mode it offers 1Mb plus a 512Kb disc.

PC Power Board supports Monochrome, Hercules and Color Graphics Adapter video modes, 3.5in internal drive plus 3.5in and 5.25in external drives. Included with the board is MSdos 4.01, MSdos Shell and GW Basic. Price of the full package will be around £320.

Bitcon Devices is at 88 Bewick Road, Gateshead, Tyne and Wear, NE8 1RS. Fax, 091-490 1918.

Clocking in at speed

BILLED as the only MC-68030 accelerator to employ state of the art surface mount technology, Mega-Midget Racer is the latest turbo card from Computer System Associates of California.

The plug in card for Amiga A500 and A2000 machines, has been released by UK distributors Advanced Technology Holdings (0923 817548).

Evolved from CSA's Midger Racer, the Mega-Midget Racer features selectable clock speeds of 20, 25 or 33MHz, support for floating point maths co-processors at speeds of up to 40MHz, 32 bit 512Kb Sram for operating system kernel, 32 bit ram expansion bus and software selectable MC-68000.

The asynchronous design used through an easily changeable crystal oscillator and an optional MC-68881 or 68882 math co-processor can turn in clock speeds suitable for racing through number crunching applications such as CAD, 3D animation and ray tracing.

Also available is the less costly 20MHz 030 board which is still expandable to maximum performance.

An optional 512Kb, 32 bit Sram module allows copying the Amiga rom kernel into high-speed 32 bit Sram for lighting fast screen refreshes, page flipping, scrolling and image processing.

A full 32 bit wide expansion bus provides support for high-speed memory and I/O devices in 8, 16 and 32 bit configurations.

Advanced Technology Holdings assures users of software and hardware compatability by resocketing the standard MC-68000 on the board for easy software switching to either the MC-68030 or the MC-68000 operation.

Starting price for the Mega-Midget Racer is £649.95 with a 20MHz MC-68030 installed.

Take 1 – on an Amiga

A TEAM of programmers are working round the clock on a new Amiga based project which could revolutionise home movie making and be a useful asset for teaching children with learning difficulties. They are aiming to have it ready for the market by May.

The animation system and software will be a cheaper version of an existing professional set-up based on the Amiga 2000 and costing £8,500 from market specialists Chromacolour (01-675 8422). It will be for use with the Amiga 500 and will cost around £2,000. Commodore has placed its weight behind the new system.

"This smaller version of our existing professional system will become a home movie making unit", said Roy Evans of Chromacolour.

"If people have an Amiga 500, our package, a TV and video recorder they will be able to make their own animated movies, off-load them to video and show them on television to their families".

Great interest has also been shown in the educational potential of the system for children with learning difficulties. Its ability to take images, move and colour them makes it ideal for stimulating interest.

It has been under test at SERT, the London based unit which assesses learning aids for disabled children and will soon go out on test with educationalists to see how it can be adapted for those with specific problems.

Marketing's new chief

NEW marketing manager at Commodore UK is Dawn Levack, who previously spent nine years with Wang Computers holding various managerial positions, culminating in the job of marketing communications manager.

Before working for Wang, Dawn held positions at Prime Computers and the Beecham Group.

She will head the marketing department with responsibility for both leisure and
business machines. Her brief
is to add structure to the
department and concentrate
on the PC side of Commodore's operation.

Another recruit to Commodore's new arm is former Philips Consumer Electronics man Steve Paul (32) who takes up the position of marketing manager for consumer products with Commodore Marketing International.

At Philips he was responsible for strategic marketing of new products having worked for the company from 1985.

He previously worked for four years in product development for Philips Lighting. Commenting on the appointment, Peter Bayley, Commodore's vice president of international marketing said: "Steve's extensive experience and his knowledge of the consumer electronics market will add greatly to the strengths of our new international operations.

"He will be working to ensure that Commodore continues to develop its position at the forefront of the dynamic European home computer market".

Hackers beware

JUST when it seemed that the recent Law Lords report on computer misuse was destined for a Whitehall waste bin, a stroke of good fortune has turned into an unlucky break for hackers.

After coming third in the House of Commons lottery to decide which MPs will be allowed to raise Private Member's Bills, Michael Colvin MP has opted to resurrect the hackers charter which recommends jail for certain cases of data theft.

When the computer misuse report was published by the Law Commission at the end of last year, it was tipped for discussion in the government's current session but was edged out by more pressing legislation. With his Private Member's Bill, Mr Colvin now hopes to make the report law.

All the colours, especially green

AS well as launching into more full colour, Amiga Computing is going green. Future issues will be printed on paper manufactured in a way which is kinder to the environment.

Publisher, Interactive Publishing, is to use paper made in Scandinavia under the tight ecology rules imposed on mills there.

To reduce tree felling, it comes from the waste offcuts of other wood processes such as furniture making also employing a new chemithermo-mechanical process which makes more economical use of wood than older methods.

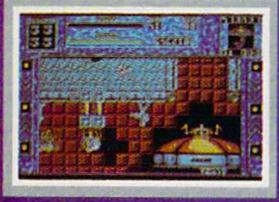
Coating of the paper further improves the environment by using slurry from the Cornish china clay industry.

Strict water purification plays an important part in its manufacture and the potentially damaging effects of chlorine bleaching have been eliminated.

The paper comes from wood grown in the forests of Finland and Sweden where meticulous records are kept and trees are grown to maturity faster than they are felled.

"When we decided to move over to paper made by more ecologically sound methods, our problem was to find a quality product which would support Interactive's improved production technology", said the company's commercial director David Hirst.

"We believe we have now found the right answer. This paper cuts down the use of natural resources, eliminates potentially harmful processes but will allow us to retain the high standards of print and colour reproduction which readers of Amiga Computing have come to expect".



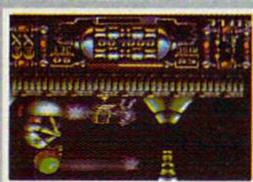
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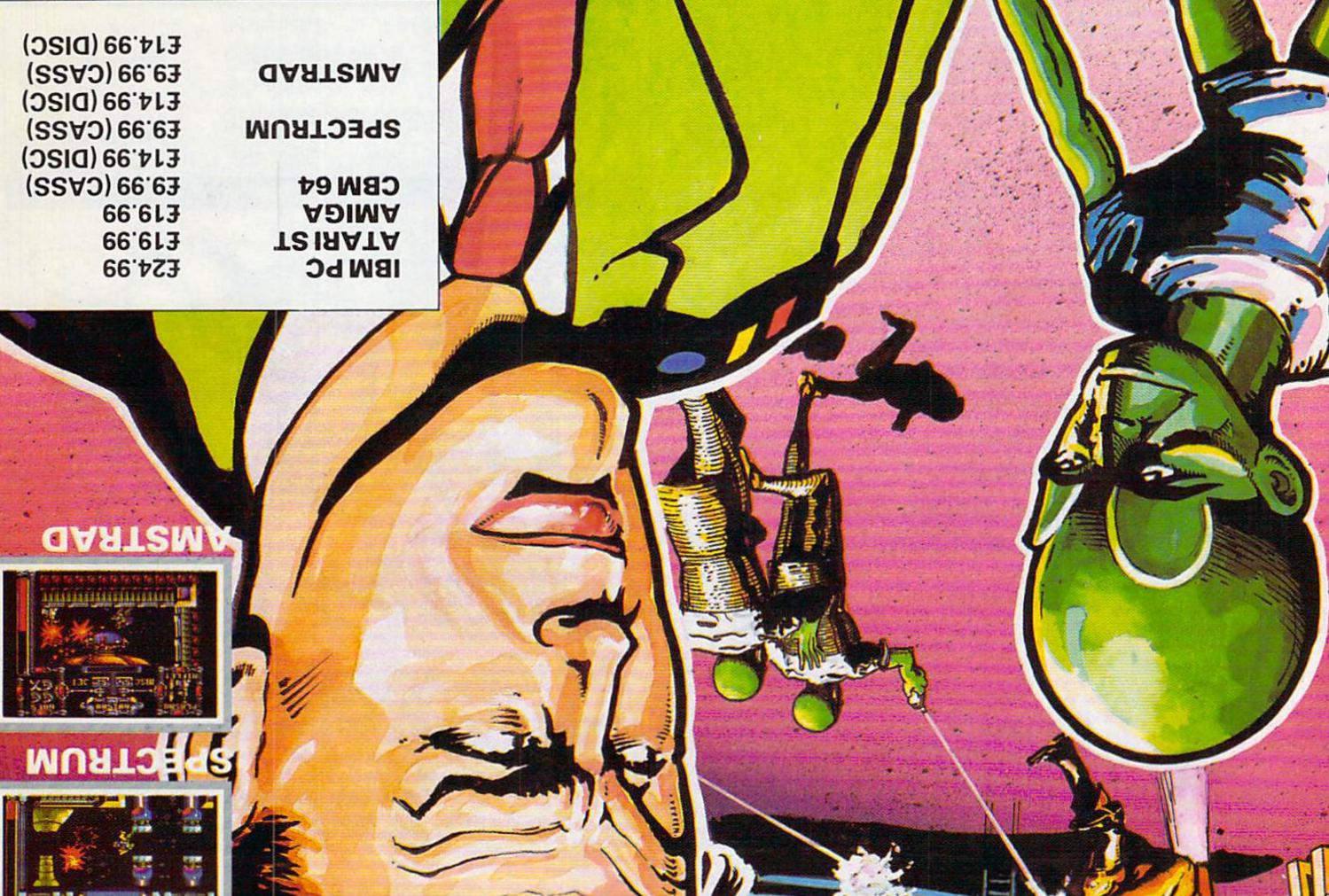
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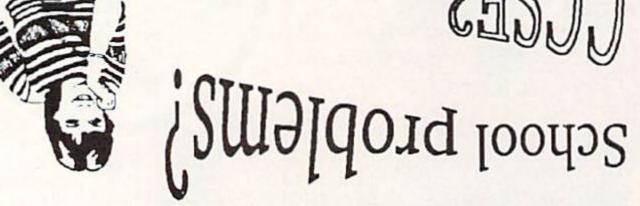
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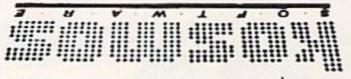
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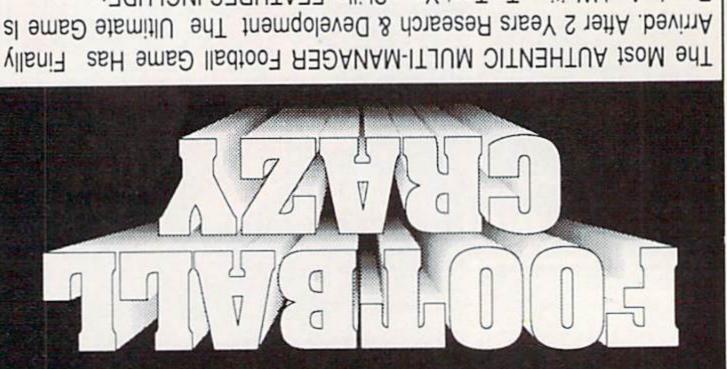
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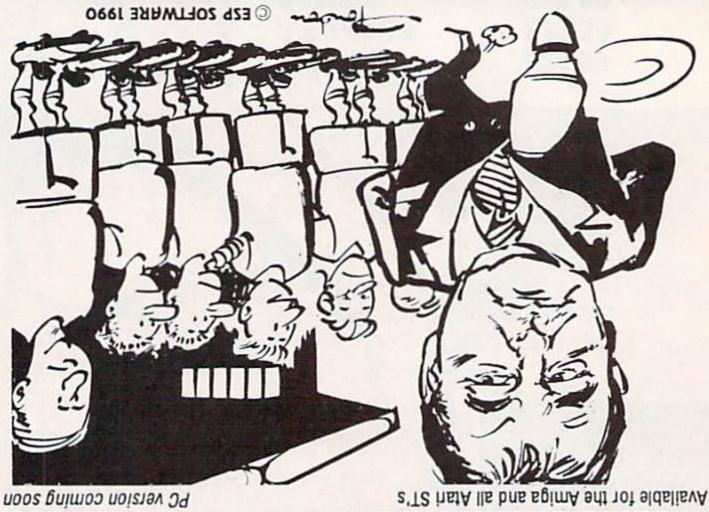
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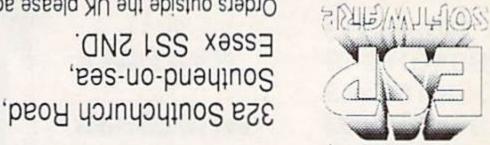
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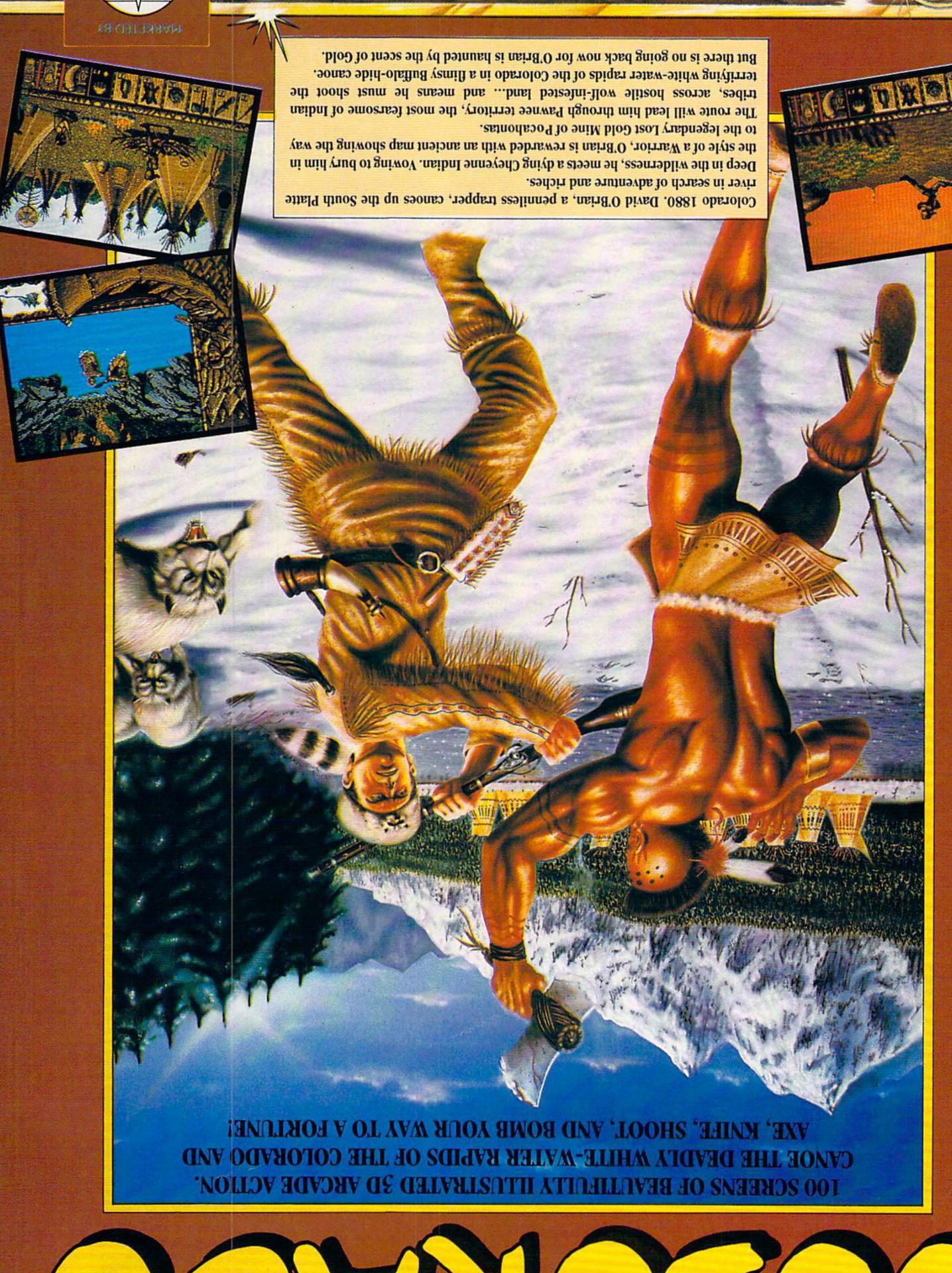
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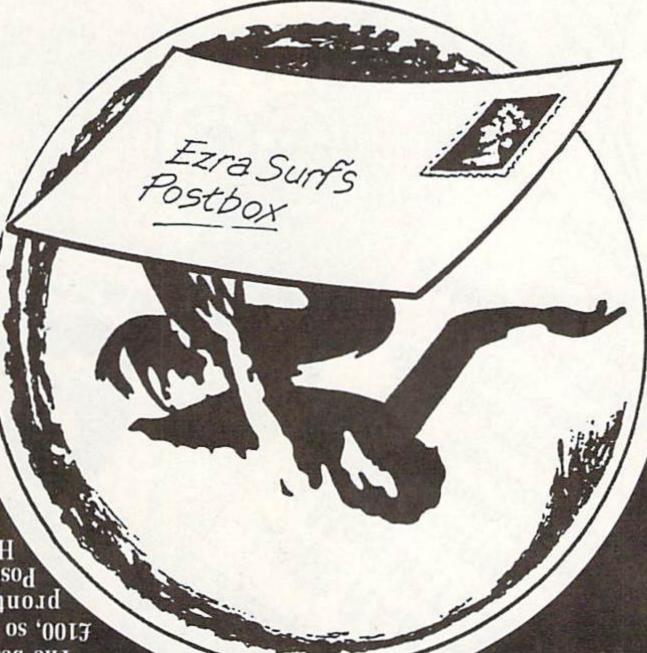
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disc, Fruit Machine ran fine. master copy of that month's cover access. Before he optimised his

something to do with speed of gaintiemos

sure it's a bug in Amiga Basic,

Power down

problems with Diskcopy with my 1 because I too have experienced sounded frighteningly familiar YOUR letter from S. C. Claphoe

on three copies of Workbench that I to discover that this program failed happens. Just today I was amazed gnidon bas stridw evirb lsaretni inserted and Return is pressed; the Diskcopy fails when both discs are I have found that occasionally meg, two floppy A500.

10 seconds and re-booted. switched the machine off for about workbench, for this trouble so I the software or hardware, or even I wasn't sure whether to blame

failed to work, as before. What happened? Diskcopy

duplicate with no trouble at all. worked, and Diskcopy managed to the machine. To my relief it doing this will totally power down minutes because I have heard that the machine off for roughly five Desperate by now, I switched

if reported no errors at all. found on a recent cover disc - and rupted. I used Diskchecker - as see whether or not the file is coralso like to try using Diskdoctor to new copy of Workbench. He might doing the same before making a I suggest that S.C.Claphoe tries

Surrey. Woking, David Carter,

> dow to flash on. that dreaded "internal error" winrequired and waited patiently for

Machine kept on loading happily It never came, and Fruit

The conclusion is that this time from that it worked well. ignated for the program. Apart not have the required font you deswith the exception that my WB did

Frank X Buttigieg, figure out which file that would be. requires. I have not had the time to cover disc which Fruit Machine perhaps there's a file missing from Amiga Basic isn't to blame and that

Australia. Victoria,

Cheshire.

Holmes Chapel,

Joseph Garner,

Nope, Jeff "The Disc" Walker is

throw up.

Amiga.

.Huff.

grief a badly written program can

mature programmer you know the

experience. When you are a

lists for instance, is the result of

ming practice, trashing copper

copy of Modula 2, running on the

when he's got an assembler, or his

know what he's talking about

Well, hactually, Mr Rivetts does

only produces better and better

The dislike of poor program-

Bin Basic

carry on with my other projects. of yews if ind bas, if aliw auf agreeing with you, had a bit more ing my head too. I conceded by January cover disc had me scratchthe Fruit Machine proggie on the while the error you described with Basic is seriously crippled. For a YES, it's true. As you stated, Amiga

in memory, clicked on the icons as the disc with my Workbench still my own Workbench on, so I loaded bandits). This time I already had the program to my wife (she loves A bit later on I decided to show

fun, it's hell. all, trying to sell it. This is not design, deadlines and, worst of but after that you have level of code like a game is great fun, because I enjoy it. Writing a piece

.sdod would be impressed by 64,000 as well as basic 500s. And, yes, I drive, not PR's fantasy machine, 1000 with 512k and one disc demo I've ever seen works on a As for compatibility, every

its, a common philosophy which try to push the machine to its lim-Whenever I write a piece of code I do things unthought of in '86. Some of the demos nowadays

what you read

Don't believe

old Amiga look like a ZX81 mended that it made the poor little which were so highly recomeven more atrocious, five Atari STs load of rubbish! The prize was TV Times at Christmas? What a DID you see the competition in the

an ST owner? I pity them myself! Is Since when have we ever envied without extended ram pack.

This next quote comes from rid of their stock? this the only way that Atari can get

tainment, or creative or serious makes the machine ideal for enterputer users. Its powerful processor owner is the envy of all other com-Te adT" :samiT VT adt to EEI ageq

-basleim taniage wal a risht t'nal

ing the public?

Wiltshire. , nobniw2 Marcus Steward,

TS nd your Amiga straight away and buy must be right. I expect you to junk ti (And is number one) it best selling magazine in the counexplains a lot. As it is the second writes for TV Times. Suppose that I used to work with a girl who now

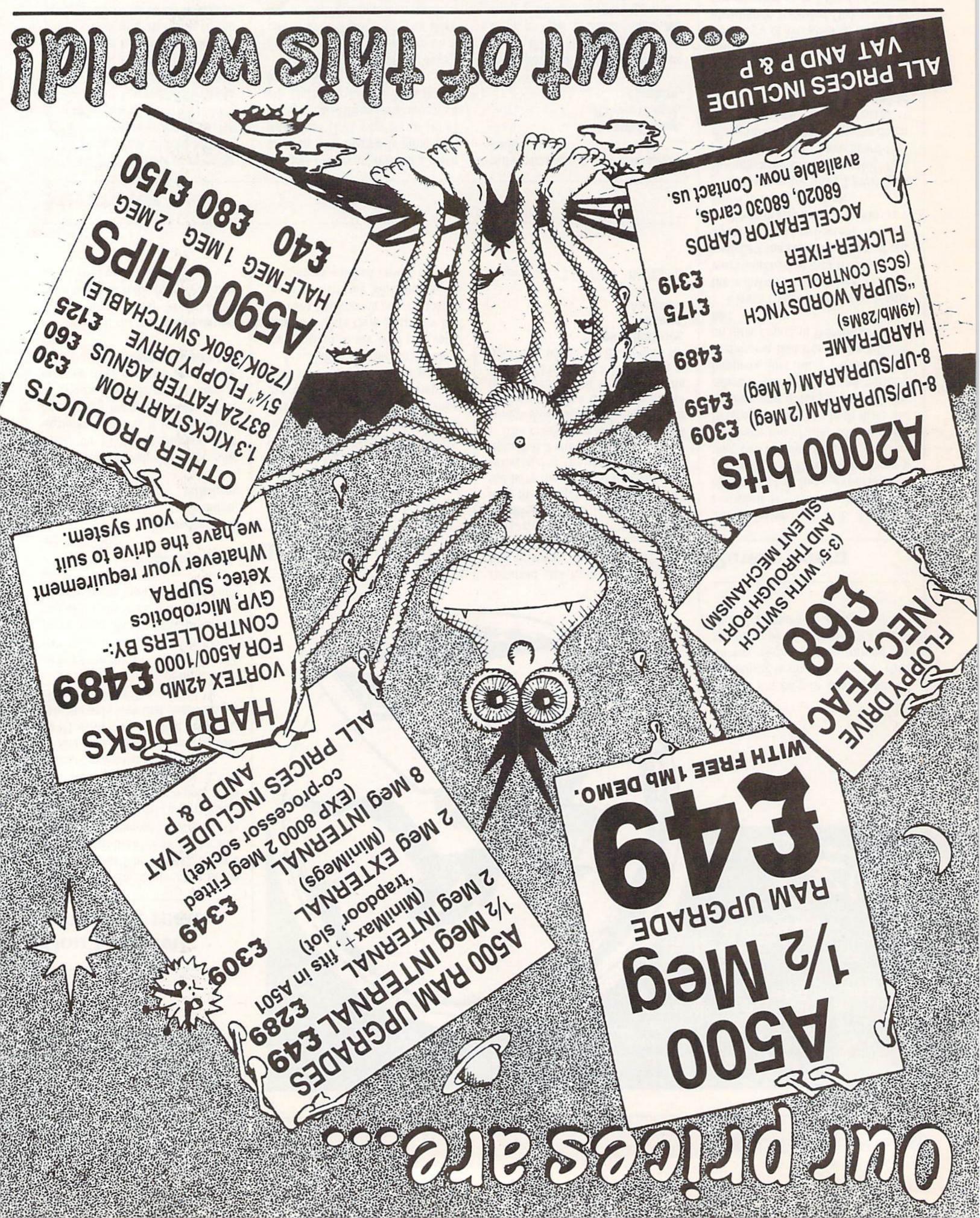
which isn't quite as good?" get Amigas so settle for a computer the magazine to say "we couldn't Come on, do you really expect

Mighty Joe

intelligence of those he is attackyour readers and an insult to the an insult to the intelligence of unbalanced, bigoted, infantile done, December 1989) is biased, talking about; the article (No harm simply doesn't know what he's two hours before a deadline. He seems to be three tabloid articles PETER RIVETTS' idea of research

a software house. I program least one who works full time for not writing games yet I know at away. He moans about crackers double PR's experience straight on the Amstrad, I reckon that's I've written demos and games

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for a copy. your discs I am encouraged to save an expensive program, but through would never have considered such follow-up articles was excellent. I demos, the Protext demo with the can happily live without the game

and music programs were excelto provide more puzzles. The art with perhaps reader contributions a screen editor on a future disc, gameplay! I was looking forward to my most used program. Fantastic Cave Runner was for a period

mented my computer beautifully. provide a disc which complekillers and utilities, combined to in, plus the latest versions of virus grams that we didn't have to type All this together with Basic pro-

disc. a cheaper magazine without the your survey said they would prefer I can't believe that anyone in

South Wirral. Parkgate, Alan Green,

At a loss

considering the quality of the for the magazine alone, especially price for what we got than £1.95 I FEEL that £2.95 was a far better

efforts. Format's "fill it with a duff demo"

They were far better than

What a loss to the expanding

Amiga community!

Warwickshire Coleshill, James Gilmore,

It was the best bit

worth the price. bits the disc contained it was well little more, I agree, but for all the the cover disc? OK, the mag costs a WHY oh why have you dropped

them versus your average of nine got about four or five items on with cover discs; they have only look at certain other magazines magazines. You have only got to value for money disc on all the Not only that, it was the best

ward to each month. It must be, it's the bit I look forthe best part of the magazine away. my complaint that you have taken Anyway, this is just to register

Staffordshire. Stockton Brook, Carl Beech



Packi Relax - it's

argument for the disc's return. Jeff with such a rich supply of ammunition to bolster his Grateful thanks to all of you who wrote in for providing received campaigning for the return of the cover disc. This is just a tiny selection from the sackful of letters we

bet he thinks an Amiga is some sort something equally bizarre, And I inefficient use of resources or his bonnet about market strategy or Interactive has plainly got a byte in it and live it. Some suit at write it, sub it, proof it, eat it, sleep torial beings - after all, you only

Computing, June 1990: can see it now on page 9 of Amiga long before another compromise? I it, I'll be here to read it. But how As long as you are there to write

of new car.

erom eloveb of elds oals ere eW ... price of the magazine down to 95p We have been able to bring the source of cheap colour piccies ... and entertainment, not just a should be a source of education pages we decided that a magazine the results of a survey in the colour lot of discussion with readers and "Colour or cheaper? ... After a

pow much? I exaggerate, of course. But by time to photocopying it for you".

Веткяћіте Pandgbourne, Eddie McKendrick,

Can't believe it

Essex.

Harold Hill,

Chris Cannon,

take a backwards step. Although I 2, Issue 9 that you were about to wrong date on the front of Volume I SHOULD have realised from the

> that you could find the answer to DA 10 osib 19v00 a tuothiw 28.13 "Which would you prefer, AC for

as the most comprehensive and changed, I still value the magazine sad gnidton ... anog sad ti tadt woll .anisas magazine. Now Amiga Computing was my Before the cover disc was axed

cover disc withdrawal goes well writing this letter. I suspect that the There is no real point in me

down the country. apparent at newsagents up and that question being painfully quality software?" I regret to say for £2.95 with one megabyte of

witty source of everything Amiga.

beyond the control of humble edi-

mas an asset as opposed to an

games. But I still think the disc

there is more to the Amiga than

yourself on Viz and can see that

haven't, like the rest, modelled

workbench upgrade and

butions and little gems like the

ins, source listings, reader contri-

to the magazine with article tie-

Never mind. At least you

incentive.

PowerPacker.

Your article seemed to imply magazine tie-ins - no hope. on , snoissimdus reader submissions, no liant icons, no handy utilities, no No Jolyon Ralph demo, no bril-

Computing's competitive edge in ware which enhanced Amiga lection of genuinely useful softbetrayed by the presence of a coland entertainment" was somehow that being a means of "education

formula (your cliché, not mine).

disc had fallen victim of a proven

it became apparent that the cover

of page 9. After reading the article

count?" plastered across the centre

finding the headline "Disc or dis-

alarm (dramatic sound effects) at

gubbins at the front. Imagine my

started reading the Amiga Scene

into the middle to ensure safe

Database Direct always slots them

- anisagam ym lo fnort of baqet

that there was no cover disc neatly

not alarmed in the slightest to find

BEING a devoted subscriber I was

What goes next?

arrival through the letterbox.

Having scanned all the adverts, I

The article also points to the its market sector.

something? happened? Did no one respond or result in its disappearance. What wanted to see on the disc could stand how a survey asking what we issue. I find it difficult to underappeared in the November 1989 results of the disc survey which

reduction in price. Big deal! removing the disc is a substantial The only tangible benefit from could detract from it in any way. providing an excellent cover disc strong editorial, I fail to see how Amiga Computing has a very

sioned a survey with the question: would happen if you commis-What do you honestly think

Valuable asset

estimated its value. would appear that you have under why you have dropped the disc, it READING the explanation as to

PD, just to appease the god Profit, and a hotch-potch of irrelevant punters off with pointless demos to Amiga Format, they palm the shall remain nameless, but I refer Unlike other magazines, who

the disc to add an extra dimension You, on the other hand, used whom they worship.

4

course. turning on multi-tasking again, of then the system goes to hell. After

could you explain? on sending letters. Please, please, I make continuous loops that keep sent loads of them down the line or I can't print letters unless I have

'xəssng East Dean, Kevin Biscoe,

or they are called Jez San. multi-tasking to work. Either that know this seem to be able to get mers use Lint". Only people who brain dead" and "real programlines like "all metal bashers are things you must learn some magic black art. Before you do such Fiddling with multi-tasking is a

The Kickstart Guide to the Amiga. Wesley manuals. And get a copy of floo on the full set of Addison answered by a book. Go and blow Such techie questions are best

Your NEC Don't axe

We have an NEC PC 8023 printer at drivers for the NEC 8023 printer. you've had some letters about OVER the past couple of issues

to try it! an Imagewriter driver, it can't hurt same control codes. The Amiga has nisms, we think they may have the They both have the same mechaalongside an Apple Imagewriter. one of our Unix systems, it works It's one of the system printers on

Manessman Tally MT120 printer? Anyone know anything about a

Herts. Royston, Paul Duncan,

Ho gaibano?

listen to and put into my games. totally well 'ard music that I can my friend's Casio synth to make because I would want to use it with have to be Midi compatible the best for around £100? It would WHICH sequencer do you think is

Warwickshire. Atherstone, Michael Marsh,

496497 for release details. Call Microlllusions on 0480 And that one is Music-X Junior. video): "There can be only one". (great film, you can get it on In the words of the Highlander

> worth having. software emulator, saying it's not tion the Transformer, which is a rate IBM clone. Sometimes I menyou'd be better off buying a sepayou need a 2000, and even then tud noitulos sno si bradsghird about how PCs stink, how the every month. I then write a bit

> and Wear, NE8 1RS. 88 Berwick Road, Gateshead, Tyne details contact Bitcon Devices Ltd, trapdoor of an A500. For more ish) bridgeboard which goes in the because there is a cheapie (£350-Now all this has to change

One track mind

tures. OK? tures adventures adventures adven-ADVENTURES adventures adven-

Israel. Jerusalem, Eyal Teler,

SAVE AS you go. OK? Маке а тар, ехатіпе ечегутіпв,

The secret's out

I have many problems to solve: machine code for most computers. We exchange information on club I have with my pals at college. IT ALL started with this new secret

First the printer prints its lines, cases it's worked, in some it hasn't. off multi-tasking. Well, in some upsetting the system one must turn Jolyon Ralph said that to prevent

> Amiga does damage its reputation that the gamesy image of the are pleased about this. You're right flopped badly. Some US Amigans Amiga as a home/games computer In America attempts to sell the

> run that one piece, or type, of softple will buy the computer just to tion" - a program so good that peo-Amiga needs is a "killer applica-Some claim that what the as a business machine.

Commodore US is working hard

for it. menace out of the country, I'm all serves to keep the Japanese console application is games playing. If it Commodore crown, that killer the UK, which is the jewel in the fulfil this role worldwide, but in on an authoring system which may

Jurning Blue

figimA bebniedxenu ym order to run these PC programs on mare or hardware I would need in Please could you tell me what softme. We use IBM compatible PCs. cal engineering at college, and it's SOMEONE has to study mechani-

one is the best and where can I buy need a PC emulator? If so, which that's no problem. Would I just The PCs have 3.5in discs, so

if from?

Cheshire. Stockport, Mark Davidson,

I get at least one letter like this

Blunders

This raises a few questions in department as soon as possible. pubic comment to be sent to his

wrongly? have disastrous effects when spelt the spelling of words that could Computing check more thoroughly ngimA bluod2 Sytilstnom sid conclusions can we draw about Vicholas the secretary of? What What trades and industries is .bnim ym

Middlesex. ,wolznuoH Michael Finnelly,

by the short and curlies there. of it. You got him, one might say, Mike, and he couldn't wriggle out I showed the editor your letter,

> magazine such as yours being the us. The concept of a well written those impressionable ones among that would affect detrimentally Computing is the type of magazine NEVER let it be said that Amiga

> includes a high level of smut the first issue of the decade managed to slur your good name; Computing of the 1990's you have Alas, in the first Amiga .aldsnigsminu culprit of such dirty deeds seems

word is one word too many. totalling, well, one word. But one

Secretary, is apparently inviting Ridley, Trade and Industry graph it appears that Nicholas go to prison". In the second para-Consider page 9's "Hackers will

Death to games

make any difference to sales, at sound are, but it doesn't seem to good the Amiga's graphics and ing. Everyone seems to know how practically every area of computannoying lack of recognition in Hall's views about the Amiga's I WOULD like to add to Gerry

when you need to do something cated custom chips, is great, but Amiga, with all its lovely dedi-The argument goes that the least not until 1989.

unstuck. serious with it you'll come

this are crazy and don't fully Atari ST. Sad. Those who believe good workhorse computer like the What you need, they say, is a

ready to go and can be very fast use, admittedly, whereas the ST is The basic Amiga setup is hard to understand how the Amiga works.

with limited resources.

The Amiga cries out for periph-

potential, and only will when you fixed storage space to show its true setup doesn't have the ram or the erals. As a result a basic Amiga

.ti bnsqxs

The biggest area of neglect has to little to match an expanded Amiga. initially slow and clumsy. There is stand why AmigaDos appears ity of people and they misunder-This is off-putting to the major-

tion of the Archimedes, can offer computer, with the possible excepmigrate to the Amiga. What other ing the musicians that they should be that of sound. Music-X is show-

Firstly, the Amiga has great so much in this area?

the Amiga's multi-tasking. to Paula, but the main advantage is internal sound capabilities, thanks

create a fully-featured, customised packages that can combine to use multi-tasking to run different a new package. Instead they can reset their systems in order to load Musicians no longer have to

AmigaDos if Amiga sales are high even convert all MSdos software to news suggests that Microsoft may the BBC, the PC, and the latest have, plus more. It now emulates die. It has everything the others being a games only machine has to view the old idea of the Amiga What has gone wrong? In my music studio.

Birmingham. Selly Oak, James Hannigan,

enough.

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leave large gaps in strategy and the fraction of this hypothetical list would possible positions. Even using a small because the game has a finite set of such a list, although it must exist, No one has ever even completed time that a game would be unplayable.

player. computer would be a poor, and slow,

fit f'nesob, doesn't it? the minimax theorem. Sounds timespan. Such a technique is called possible move within a given Something that can find the best So we need a new technique.

Sneek a peek at Figure I if you want off to various other possible nodes. called the root. From it, branches lead typical tree has a start point, usually complete with their own jargon. A programming techniques and come are phenomenally important all the possible game positions. Trees It works by constructing trees from

be called an upside-down tree. I don't be picky and say that it should really to get the general picture. You could

> from scratch again. gobbledegook you will have to start computer. If the code is written in purposes, perhaps even a new make slight alterations for specific routine, you will want to be able to

minor alterations. to Reversi - aka Othello - with only and crosses rules can also be applied drawn. Strangely enough, the noughts game cannot be lost, only won or simple rules. If they are followed a crosses you should be able to provide For a simple game like noughts and calculation, is where the fun starts. The second section, move

following them would take so much would be so hugely complicated and needed for a game of chess. They However, imagine the list of rules

logic problems gaimmingord smos to toor and of stag John "AJ" Kennedy

techniques are involved, techniques Some useful programming them. Artificial Intelligence needed to play sometimes bored) games and the games usually referred to as board (or kind, but a brief introduction to the scrolling, blasting innocent aliens machine code sprite, hardware OW about some games programming? Not the

programming fetish. matter what your current which will stand you in good stead no

The first stage is usually a matter of discovering draws, wins and losses. evaluate the current positions, calculate a new move; and third, game using data structures; second, are three stages. First, represent the participate in a two-player game, there When programming the computer to

as that in Listing I. crosses game may use a structure such positions. For example, a noughts and defining arrays to store all possible

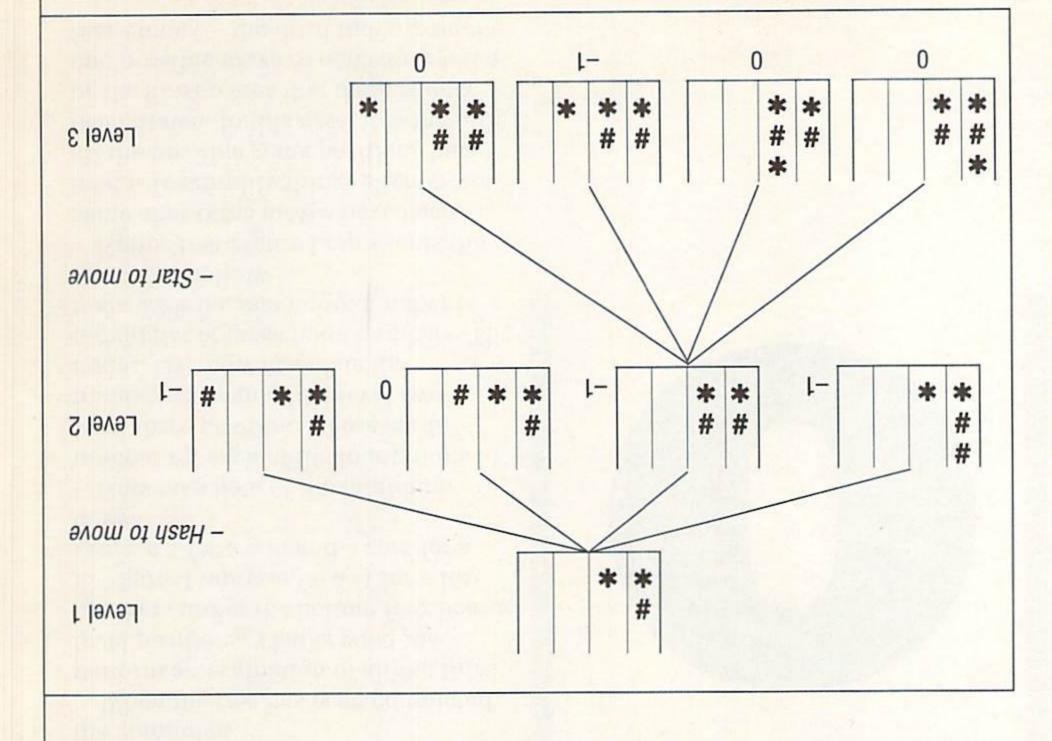
complicated it becomes to understand. the more you do, the more optimising this part of the code, but should always be able to find ways of rarely more than a dull slog. You tricky, but for a simple game it is Evaluating positions is sometimes

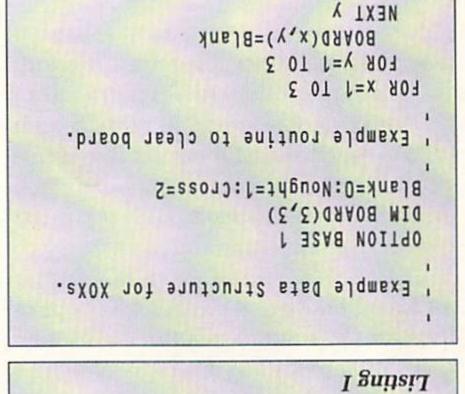
a machine code sprite routine for an Performance may win hands down on between performance and complexity. Always be aware of the trade off

your code is a general purpose sort probably never use it again. But if arcade game - after all, you will

Тһrее-in-а-Rоw the game tree for

A section from





NEXT X

AMIGA COMPUTING May 1990 25

When adapting the technique to left on level two.

of the program is determined. like chess, this is where the real skill evaluation procedure. For a program hardest part of the coding will be the other, more complex, games the

learning. stuff that Chess Masters spend years strategic strength and all the kind of material worth of pieces, the current The evaluator must decide on the

used when programming a game. It of the possible techniques that can be The minimax algorithm is only one

If you want to learn more about AI, which form a fascinating area of study. Intelligence programming methods belongs to the large family of Artificial

plenty of books to keep you busy. in the computer section. You will find visit your local library and look it up

> To examine the minimax theory and really mind if you do. I did.

> The game we shall use is called example in this context. Noughts and crosses isn't a very good new game to experiment with. programming trees, let's make up a

> won or drawn. players taking turns until the game is dropped into vertical slots, with both horizontally or diagonally. Shapes are shapes in a row - vertically, The object is to get three similar copyright-infringing way, of course). be familiar to you (in a totally non-Three-in-a- Row, which will hopefully

Basic, preferably compiled with sgimA ni nettirw mergorq s gninnur investigation will be the Amiga, Obviously the other player in our

HiSoft Basic Compiler to speed things

səlnı XOX

 If there is a winning move, make it. noughts and crosses. SOME tips to beat your friends at

prevent losing, make it. Else, if a move must be made to

 Else, If there is an edge available, move there. Else, if there is a corner available,

 If all else fails, occupy the centre move there.

square.

When the tree has been completed, the computer.

contains all the responses made by

by the person playing and the third

possible moves which can be made

In Figure I we have used three

draw them out to a fixed number of

would take a long time, so instead

all the possible moves because that

for all the possible moves. Well, not

works. First draw out the game tree

up. Here is how the minimax theory

levels.

levels.

of a game, the second contains all the

The first is a position in the middle

Now take note of the minimum draw. game, a 1 for a win and a zero for a in Figure I represent - a - 1 for a lost numbers under the bottom four boards level positions. That is what the perform an evaluation of all the third

the one to follow. node with the maximum number is maximum of these node numbers. The nodes. OK, now calculate the numbers at each of the level two level three positions; these are the number for each of the four groups of

Star victory - the third move from the one possible move to make to avoid a of Hash, who sees that there is only been drawn. In this case, it is the turn all the possible game positions have made. To simplify things slightly not game after three moves have been Notice that Figure I represents the



мол в пі ээлАТ

The minimax piece of code is in the recursive subroutines, like C or Pascal. language capable of withstanding task. What would be best would be a not the best language for this kind of places. This is mainly because Basic is as though it gets a bit tricky in HE program in Listing II looks

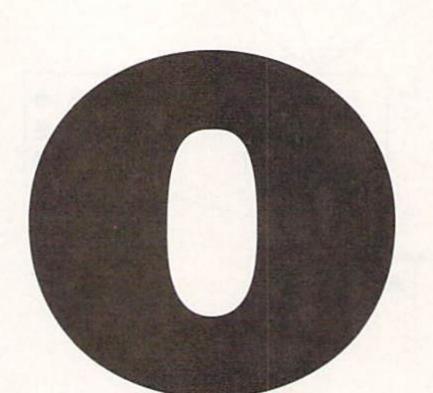
position by position. If you aren't sure two extra levels in the game tree, routine GetHashMove. It works out the

When the program is run, a simple an idea what was going on. beginnings of a smidgen of a inkling of listed in C you wouldn't have the Look on the bright side - if it was statements around to give you hints. the code, try scattering a few PRINT exactly what is happening where in

Now the computer will use its typing 1 to 4. to place your asterisk playing piece, by choose the number of the slot in which will be displayed. You must now representation of the playing board and I mean very, very simple -

пем точе споѕеп. minimum scores is calculated and the three. Then the maximum of the moves, then all the possible level calculates all the possible level two considers the best possible move. It Artificial Intelligence to pick what it

wins or a draw results. Play continues until one of you



```
. a wove.
                                                 ' See what happens if a piece is
                              END SNB
                                                                                              ' Use the minimax theory to pick
     IF f$="N" AND c=16 THEN f$="D"
                                                        SHARED fs,min,newcopys()
                                                                                                                  GetHashMove:
                                                                            STATIC
                   ' make it a draw.
                                           SUB InsertPiece(bd$(2),column,piece$)
     llut braed bas , ranniw on tl '
                                                                                                                        RETURN
                                                                                                             PRINT "-----"
                                                                           RETURN
                              NEXT X
                                                                                                                      NEXT y
                                                                        NEXT move
                           NEXT y
                                                                                          PRINT "|" The bar char again.
                                                                          : trynext:
                              :12910n
                                                                                                                    NEXT X
                                              nim=muminim N3HT muminim>nim 31
                  (x+1,y) THEN fs=ts
                                                                                                  PRINT "|"; board$(x,y);
IF test$(x-1,y)=t$ AND t$=test$
                                             CALL InsertPiece(lev3copy$(), move
                  $1=$1 N3H1 (1+4,X)
                                                                                          backslash key (top row, right).
IF test$(x,y-1)=t$ AND t$=test$
                                                                         X TX3N
                                                                       NEXT Y
                                                                                            You'll find it on the shifted
              ts(x+1,y-1) THEN fs=ts
                                              [GAZCODX2(X'X)=UGMCODX2(X'X)
                                                                                               in the next line is a bar.
IF tests(x-1,y+1)=ts AND ts=tes
                                                                                            The character between quotes
                                                                 FOR y=1 TO 4
              ts(x+1,y+1) THEN fs=ts
                                                                   FOR x=1 TO 4
IF test$(x-1,y-1)=t$ AND t$=tes
                                                                                                              FOR X=1 TO 4
                                                                         0 trynext
          IF ts=" " THEW notest
                                             IF newcopy$(move,1)<>" " THEN GOT
                                                                                                                FOR y=1 TO 4
                   (x,x)21291=21
                                                                                                                          PRINT
                      FOR y=2 TO 5
                                                                                                              PRINT " 1 2 3 4"
                                                     for each new third level.
                        FOR X=2 TO 5
                                              Make a copy of the second level
                                                                                                                     PrintBoard:
                              "N"=$}
                              X TX3N
                                                                  FOR move=1 TO 4
                                                                                                              GOTO GetStarMove
                            NEXT Y
                                                                                                     ".nisge try again."
   IF brd$(x,y) <> " " THEN c=c+1
                                                                        S=muminim
                                                                                                 PRINT "Sorry - Invalid move."
        tests(x+1,y+1)=brds(x,y)
                                                                                                                        : avombed
                                            ' Calculate third level in game tree.
                     FOR y=1 TO 4
                        FOR X=1 TO 4
                                                                       :JevelblidT
                                                                                                                         RETURN
                                                                                                    CALL InsertBoard(move,"*")
                                                                                           IF board$(move,1)<>" THEN badmove
                                                                            RETURN
        ' test for all eventualities.
                                                   CALL InsertBoard(bestmove,"#")
                                                                                              IF move<1 OR move>4 THEN badmove
     bns years test offi breod yqoo '
                                                                                              INPUT "Please enter move ", move
                                                                           END IE
                                                              6010 pickanother
                                                                                                                    GetStarMove:
                           SHARED f$
                                                          Destmove=INT(RND*4)+1
        SUB Evaluate(brds(2)) STATIC
                                                  IF board$(bestmove,1)<>" " THEN
                                                                                                                         RETURN
                                                                                                                         NEXT y
                              END 2NB
                                                                                                                       X TX3N
          boards(column,y-1)=piece$
                                                      . If no best move, pick one.
                                                                                                            " "=(\(\'x\)$bleod
                               :cqonb
                                                                      pickanother:
                                                                                                                 FOR x=1 TO 4
 IF board$(column,y)=" "THEN godown5
                                                                                                                  FOR y=1 TO 4
                   IF y=5 THEN drop5
                                                                      NEXT branch
                                                                                                                     :braogras)
                               1+4=4
                             : gumopob
                                                                          END IE
                                                                                                                             END
                                 λ=0
                                                              bestmove=branch
                                                                                                 IF fs="D" THEN PRINT "A draw"
                              END IE
                                                                   muminim=xsm
                         G010 plop
                                                            IF minimum>max THEW
                                                                                              IF f$="#" THEN PRINT "Hash wins"
                                                               Gosub Thirdlevel
                            "S"=$}
                                                                                               IF fs="*" THEN PRINT "Star wins"
       IF board$(column,1)<>" " THEN
                                                                                                             PRINT "Game Over."
                                                                 .norfreoq wen
                               O=nim
                                                                                                                        :amagbna
                                              Now news() contains hypothetical
                                                                                                                      60TO game
      · Put a playing piece in place.
                                                                                                        IF f$<>"N" THEN endgame
                                                                                                              Evaluate board$()
                                              CALL InsertPiece(newcopy$(), branc
                     SHARED board$()
                                                                                                               basodining aucoa
                                                                          NEXT X
                                                                                                              GOSUB GetHashMove
                                                                        NEXT y
SUB InsertBoard (column,piece$) STATI
                                                                                                        IF f$<>"N" THEN endgame
                                                                             (dons)
                                                                                                              Evaluate board$()
                                              uemcobla(x'x)=[enscobla(x'l'p
                               END 2NB
                                                                                                               basodining aucob
                                                                 FOR y=1 TO 4
      IF fs="D" OR fs="N" THEW min=O
                                                                                                              GOSUB GetStarMove
                IF f$="#" THEN min=1
                                                                    FOR X=1 TO 4
                                                                                                                           game:
                                                                 FOR branch=1 TO 4
               IF {$="*" THEW min=-1
                                                                                                               605UB PrintBoard
               IF f$="S" THEN min=-2
                                                                 D=9vomts5-=xsm
                                                                                                               GOSUB ClearBoard
                                 :dojd
                                                                                                              DIW newcopys(4,4)
               CALL Evaluate (bd$())
                                                    Now calculate second levels.
                                                                                            DIM [ev2copys(4,4,4), lev3copys(4,4)
              bd$(column,y-1)=piece$
                                                                                                     DIM board$(4,4),test$(6,6)
                                                                            X TX3N
                                                                                                                  OPTION BASE 1
                                                                          NEXT y
   If bd$(column,y)=" " THEN godown4
                                                                        NEXT c
                                                                                                     . enituqmod sgimA 0961 (3) '
                   IF y=5 THEN drop4
                                               [ev2copys(x,y,c)=boards(x,y)
                               1+4=4
                              : уимороб
                                                                  FOR c=1 TO 4
                                                                                                         ' By John "Al" Kennedy.
                                 λ=0
                                                                    FOR y=1 TO 4
                                                                                             ' intelligent game tree technique.
                              dolq 010
                                                                      FOR X=1 TO 4
                                                                                            Three-In-A-Row, with artificially
 IF bd$(column,1)<>" " THEN f$="S":6
                                                           'all level two arrays.
                                O=nim
                                                  First duplicate the board into
                                                                                                                     Il gnitsi.1
       .braed gniyelq otni betreani '
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whatever. Paint, Word Perfect or requester, be it Deluxe opened from any file MSdos devices can be complete with icons. The applications run from them, be clicked open and Amiga

CrossDos is a fit-andup memory. an application will it take only when it is first used by initially has little effect; device, mounting CrossDos Like any good AmigaDos

you must have. an ST or a PC, it's a product you frequently have to use it is extremely reliable. If bns evieneqxeni yliist si ti isn't an emulator, but at £29 have to bother with it. It installed, you don't ever forget product. Once

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road to inter-system communicatons Stewart C. Russell takes the easy

proper Workbench icon, can MSdos discs bring up a different dialect of Ascii. machines speak a slightly text filtering, since the other disc integrity and to toggle in ST or PC format, to check programs to format floppies There are also some

experimental basis. drive, but only on an MSdos partitions on a hard can be set to create and use current version of CrossDos 1.44 meg) PC discs. The To gem 2.1) Visinab Agid are unable to read or write Amiga drive mechanisms

which can". them to another machine

about the Amiga screen. am running to tell them I smergorq eht ylibom ot especially as I didn't need third - quite a neat trick, s ni bsqətoN sgimA diw in another, and writing this 386 PC Unix desktop tools window, playing with my workstation in one nue a no gninnur margord a gnisu agimA I'm sitting here with my

Ethernet board. X server program and an ns si sgimA ym no gninnur With X. What I have

to display graphics, an X clients. An X client is a office. It also lets my X on the network in the me talk to other machines

which wants to display graphics from one machine lines, pictures and other means "how to get points, big set of words which L transport protocol, a solidgerg s si

How is this magic done?

The Ethernet board lets

can display graphics. server is a program which program which would like other machines, who run X server program listen to the

should display the graphics. program is which X server All you have to tell the program or a spreadsheet. word processor, a paint An X client could be a make a little sun shine on his Amiga DI Walker-Morgan discovers how to

Picture?

edt gairtea

server. I can use all the

so clients on different

the same software.

transparent.

as extravagant as a 24

machines can display on one

exclusive use of your screen,

that no X client program gets

The really clever trick is

bitplane workstation, using

X can talk to screens as

colours - X helps make that

No worrying about different

Amiga. It's as easy as that.

set one variable and all the

Amiga to display them, so I

In this case I want my

resolutions or different

graphics will go to the

plain as a monochrome PC or

Best of all, thanks to its Amiga. software that works on the network, rather than just the available software on my

terminal. X lulisa one powerful X programs. This makes the still run Workbench pull the X screen down and doing the same. Plus you can DY TO TE and brit of riev ni simultaneously. You'll search server and X clients micro which can run an X "Ilsms" vino edt si sgimA multi-tasking technology, the

To find out more about drive. and about 6 meg of hard Amiga I need 2 meg of ram portability has a cost. On my Alas all this graphic

on 031-557-3260. call Amiga Centre Scotland Dale Luck's X for the Amiga,

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this bit doesn't quite work

make itself auto- mount;

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the Startup-Sequence, or

mounted permanently via

users can make full use of

any drive, so single drive

CrossDos can make use of

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simple file copier - like

Rather than being a

not, does not completely

messy and, more often than

fox terrier. This method is

rates and more wire than a

involves serial ports, baud

communicating between

use a similar format, can

Consultron's MSdos file

reckless and seemingly

disc. The reason for this

then spell-checked on an

bas TS irstA as no rotibe

processor, this piece has

brow lamion ym gnieu

been written with a PD text

To basteni ; anineqqad of

TRANGE things are

Amiga directly from the ST

system, which, since they

impossible task is CrossDos,

also accept ST discs.

two incompatible machines

The traditional method of

Central Coast's Dos 2 Dos -

The software can be

Installation is simple; a

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Sunriders, 178 Bobluni and others. ● PDOM 67 - IPEC UK demo Disk 10 includes: Nice Scroller, version is on PDOMI. 2Mb RAM, 2 Disk version. It is absolutely stunning! The 1Mb RAM ● PDOM 44 and PDOM 45 - The Walker demo. This is the original demo a 2 disk set of mega mega good demos.

 PDOM 70 - Rebels demo: Nabob, Clones Demiro, Sunriders, First, W.O.W., RAF First, Spreadpoint, Subway/ TNTand others. ● PDOM 69 - High Class UK compilation: Triangle, New BS1, Zoom Nabob, Subway, Smiley, Aloha and Sin o'Delic. PDOM 68 - Rebels Mega Competition demo includes: Pirazy.

Excellent! Mega! Brilliant!Prefers 1Mb RAM, but you will get part of ● PDOM 73 - AGAtron Special disk 10: Star Trek Dry Dock Demo. Bloodsuckers, Flash and Vision Factory.

● PDOM 76 - Agatron Animation 14: Star Trek Shuttle landing on the ● PDOM 74 - Star Trek the Starship Enterprise flying around in a circle. the demo on a 1/2Mb RAM.

● PDOM90 - Tennis game by C Dreke, excellent tennis action game. RAM. GAME DISKS SS Enterprise. Prefers 1Mb RAM, but you'll get part of it on 1/2Mb

3 disk fully working amazing graphics game! Requires IMB RAM. ● PDOM79, PDOM80 and PDOM81 the StarTrck game! An amazing ● FFISH259 - Escape from Jovi V3.0 ● FFISH252 - Star Trek Trivia V2.0 fully working.

battle between 2 robots. Chess V2.0. ● FFISH 205 - Bally the areade game, Battle Force V3.01 simulated adventure game. Requires 1Mb RAM. ● FFISH 194 - Moria V3.0 the single player dungeon simulation

.vloqonoM - 12 d2 SOFT 042 - Chinese Checkers excellent version.

Daleks and Ratmaze.

adventure and Bullrun a battle simulation. SOFT 118 - Amoeba Attack, Lander, Gravity Attack, World text SOFT 078 - Pac Man. Great implementation of the classic game.

Reversi, Black Jack, Crazy Eights, Klondike, Jig Saw, Keno, YachtC. Boulder Dash type, BackGammon, Chain Reaction, Master Mind, ● PAN 29B - Amoeba space invaders, CosmoRoids, Stone Age a

SOFT 068 - Clue as in Cluedo, Othello, Klondike, games with stereo sound, hi res scrolling etc. ● FFISH 259 - Escape From Jovi a fast action mega graphics SOFT 042 - Chinese Checkers excellent version.

 SOFT II7 - Empire, Gravity Wars, Hanoi, Hockey. Command, Cosmo 2 and 3D Breakout, SOFT 069 - Backgammon, Yahzee, TVision, Missle Canfield and Cribbge.

SOF117. A 3 disk pack for only £7.50! ● AMP 8: Game Pack: 3 disks SOF68, SOF69 and Bikoff, Jackland, Othello Master, Pacman, all brilliant

CKAPHICS DISKS

● FAUG 42 - DBW Render a very good Ray Tracing tures mandelbrot designer. SOFT 013 - Mandelbrot Explorer. Excellent full fea-

Aided Design package. SOFT 123 - Amiga MCAD VI.2.2 excellent Computer

SOFT 022 - Disk Full of graphic utilities: Clip It! clip any

● APDC 13 - VDraw VI.19 brilliant painting program, Ray Tracer plus loads of excellent packages tures with enhancers, edge definition, colour and size shifters, part of the screen and save to disk, Filter Pics manipulate pic-

● AMP 3: Graphics Pack: 3 disks SOF123, SOF22 and APDC13, A 3 pieces Jigsaw program, ROT 3D drawing program. Generator, MCAD V1.2 an object-orientated drawing package, IFF to

TYNGNYCE DIZKZ

from disk FFish 171. It now generates codecompatible with A68k ● FFISH 193 - Zc V1.01 modified version of the Sobozon c compiler and appears to work well. Not for the beginner due to lack of disk info. K&R C compiler, assembler and linker. It has been tested on an A2000 ● FFISH 171 - Sobozon C a port of the Atari ST version of this full

piled and interpreted code, macros, extension tables & a debugging also offers advanced features such as dynamic loading, mixing of comexecutables & libraries, In addition to providing a compiler SB-Prolog ● FFISH 140 - Stoney Brook PROLOG v2.3.2, This disk contains the assembler and has a front end to allow easier useage.

is not needed to operate FFISH 140.SB PROLOG requires 1Mb of facility. The Source for SB prolog is contained on FFISH 141, but this

AND FFISh 77 @ £3.00. AmigaDOS & Intuition is supplied. Be sure to get both FFish 201 language reminiscent of both C & Pascal. A full interface to ● FFISH 201 AND FFISH 77 - Draco VI.2 is a compiled - structured FFISH 91 - The Adventure Definition Language (ADL).

and ready to use version with on disk documentation and examples. ● PDOM 60 - Modula II compiler. Apparently fully working, complete ● APDC 25 - Logo, XLisp, Modular 2, MVP Forth.

■ AMP II: Sonix Music Pack. Includes the PD player for Aegis Sonix MUSIC DISKS

music program and 4 disks full of music scores. A 5 disk pack for

back text that has rolled off the top of the screen, Short Cut allows you ● FAUG 50 - Dir Util V VI the disk manager, Roll Back VI.0 rolls ing, FFormat VI.a fast formattor. without icons, IFF Mirrors is an ILBM slide show with X and Y mirror- PDOM 42 and PDOM 43 - DeathStar Blasting II - Enlightment

allows you to select in your Startup-Sequence from a number ofscripts, ● PAN 25A - Disk Wipe very quick disk contents wiper, SELECT FAUG 47 - Funkey assign any text string to a function key. to define text to a single key stroke, thus CLI commands are simpler to type.

● PAN 19D - ZOO VI. 42a a very good file compressor, Con Man Virus Check VI.1.

● PAN 17B - AmiCazer 1573 stars to view any time, date or lattitude type of files with File Type, Pipe Handler, Pop CLI V3.0. Vo.99b provides line editing and command line histories, Distinguish

 ♠ APDC 18 - Floppy Disk Utils: Quick Copy V1.0, Disk Mapper, Disk use CLI froma menu, a disk cataloguer Lightning Logger VI.2. CLI only, DateBook the diary, bind any text string to a function key,

ACalc calculator Amiga Monitor VI.1, MeM Grab fast memory grab-Salvage, Viruscheck, System Utils: Blitz VI.0 text editor, TimeSet,

● AMICUS 24 - Sectorama - disk sector utility, Iconize V1.0 reduce a animated! Brilliant disk for icon manipulation. ● APDC 15 - Icon utilities: full of icon files and creators. Some ber. Directory Master VI.1

checks disk & memory, Boing Machine. full screen picto an icon, BMon system browser, Virus Check v2.21

DEMO DISKS

● PDOM89 - AMOS the Amiga Games Creator Demo. A demo of the

II. 2 disks @ £3.00 from the movie Ghostbusters requires 2 disk drives and IMB RAM! Great digitised pics and sound ● PDOM91 and PDOM 92 - Chostbusters II demo by Hellbound. popular Atari ST games creator now available for the Amiga.

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● PDOM 88 - The Chostbusters and Hungry Horse demo. Requires graphics! Requires 1MB RAM.

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■ PDOM 82 - Batman Remix demo. Sampled sounds of Prince's BATgames creator package for the Amiga.

● PDOM 65 and PDOM 66 - Red Sector Mega Demo. THE best tabulous animation and incredible sampled sounds! ● PDOM 83 - Space ACE Demo an excellent demo of the game with

■ PDOM 84 and PDOM 85 - R.A.F. - Royal Amiga Force Mega graphics!!!!!!!!!! Amazing graphics, fabulous sounds, astounding vector demo on the Amiga! A mega good demo that only needs I drive.

 FFISH 196 - Stunning digitised HAM pictures. Excellent! The qual-Demo, astounding! 2 disks but you only need 1 drive. Requires

● PDOM 01 - The Walker Demo I is a mega animation demo that .gnibnuoise zi yii

● PDOM 02 - The Walker Demo II the mega mega animation demo requires 1Mb RAM.

disk set of incredible demos! Including Mahoney and Kaktus with Blue. ■ PDOM 40 and PDOM 41 - Northstar Fair Light mega demo III a 2 and things flying everywhere. A really good demo with loads going on. disk II, great graphics and mega sounds. With abouncy mouse pointer ● PDOM 06 - The Mahoney and Haktus sounds of the knome music

APPLICATION DISKS

spreadsheet. Requires 1Mb RAM and 2 drives. ● FFISH 176 - AnalytiCalc V23.2a of the large and powerful ● FFISH254 - UEdit V2.5b the excellent word processor.

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Amiga Amateur Radio Group, Morse Code, Satellite Tracking and packet terminal programs, TA Term V5.0, a HAM Database for the ● PDOM 59 - Ameteur Radio Disk: StarTerm V3.0, P81 and P1027 2 Champion the utility.

your system security. Pcopy V2.0 the excellent disk copier. SimGen no disk in the drive. PassWord V1.21p you specify the password for ● FFISH 243 - NoClick V3.5 stops the disk drive clicking if there is loads of HAMutilities. A real must for the serious HAM user.

 ● FFISH 213 - Bitplanes the 8 colour icon user and 300 8 colour proadds a 2 or 4 colour picture to your WB screen.

gram icons!

● FFISH 168 and FFISH 169 - The Man Dillion disk special includes FracGen V1.23 fractal generator a real fully featured fractal program. of your choice at boot up. DiffDir VI.0 compares 2 directories. ● FFISH 188 - Boot Intro V1.0 displays a scrolling and a still message

VI.0. You will need both disks @ £3.00 each. VI.0, SCAT VI.0, ADDCR VI.0, REMCR VI.0 and CMP DASM V2.11, FILES V1.2, SHELL V2.1, FINDIT V1.0, LIBS DMouse VI.1, Backup V2.01, SUPLIB, LIBREF, DRES VI.0, loads of utilities and source: Config VI.0, Clock VI.0, DME VI.31,

● AMICUS 22 - Printer Driver Generator V2.3, Show ARC V5.0. FAUG 41 - Rain Bench, Amiga Arc V0.2 compatible with

program that does not support printers, ScreenX is a PCBTool V2.6 is an early version of PC Board layout RAM then rewrites to disk in AmigaDOS format, standard MSDOS or ST format, then copies them to MemBoardTest V2.4, MSDOS V0.1 lists files written in ● FFISH 158 - DiskX is a sector based disk editor, Print II.3 IFF screen dump.

scripts containing CLI commands from an icon.60 or 80 FFISH 157 - XIcon V2.01 allows you to call up task editor.. small clock/memory counter. TaskX V2.0 is a 'realtime'

● FFISH 145 - Dmouse VI.06 is a versatile program that emulator, save/rewrite and copy program, ECPM is a CP/M toggles 60/80 column text, BootBack is a disk boot block

replacement, Micro Emacs VMg1b the text editor. Hyperbase VI.6 is a database system, Mackie is a PopCLI FFISH 131 - DFC is a disk copier that multi-tasks, accelerator, popeli, pop window to front, push to back etc. includes screen/mouse blanker, auto window activator, mouse

float & complex numbers, Mach VI.6a the mouse accelerator. RPN calculator which supports calculations with binary, decimal, hex ● FFISH 130 - DirMaster VI.1 is a disk cataloguer, Hp VI.0 a nice

V2.0 and V2.1 a hard disk back up utility. or groups of files to one or more disks for quick loading, MRBackup ►FISH 129 - DosKwik a pair of progs which allow you to save files

memory fragmentation by listing the size of free memory blocks, Vo.9 a sort of CLI shell, Dk decays the screen bit by bit, Frags displays macro Assembler, Blitlab a blitter exploring program in C Conman requester and We a file word counter. Asm68K V1.0.3 fully featured ● FFISH 69 - Spool VI.2: a queue manage, printer driver and SPOOL

the mouse is moved over them, RunBack starts programs from CLI ■ FFISH 65 - Sunmouse V1.0 automatically clicks in windows when generates News of The World type headlines, Sb a sytem browser. activity, MouseClock turns mouse pointer into a digital clock, Spew Icontype changes the icon type, MonProc monitors processes for packet

makes Workbench background a rainbow, 2 Smusplayers to play Zero fills free memory, NewZap V3.0 disk sector editor, Rainbow files. Hyperbase VI.5 a neat database management system, MemClear plays any size IFF picture, EGraph creates graphs from X,Y pair text ● FFISH 55 - ASDG-rrd a RAM disk that survives reset, BigView disallowing CLI window to close.

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play that handles all screen formats. XColour VI.2 the screencolour to check unexpected file changes. TextDisplay V1.52 the great text disis a no fast memory program. SizeChecker VI.0 uses a list of file sizes text of up to 44 characters and the scrolling text of upto 300. FMC V1.2 save and analyze boot blocks. Bootlntro VI.2 you specify The headline FFISH 244 - BBChampion V3.1 the Boot Block Champion load,

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original keyboard, complete with red and green LEDs, is re-housed in a sturdy box attached by a curly cable to the main system unit. Plastic feet of various heights will

Plastic feet of various neights will be provided to tilt the keyboard to any preferred typing angle. Immediately, the 500 loses any vestiges of a games console and becomes a serious personal computer.

UALITY of construction of both units is very high, with great care lavished on appearance. Schools will love the heavy duty metalwork which protects the Amiga from even the most enthusiastic young users.

The internal shielding from the 500 The internal shielding from the 500

can safely be discarded, the heavy steel box being more than satisfactory for this purpose. The case provides a safe site for even the heaviest of monitors, for example a large multiscan for flicker-free interlaced scan for flicker-free interlaced

Flicker-free interlace on a A500?

Isn't that impossible? Well it used to
be. The A1500 unit will quite happily
provide a full Amiga video slot as an
optional extra, which means that
flicker-fixers can be used with ease,
flicker-fixers can be used with ease,
albeit lying flat inside the case,

albeit lying flat inside the case.

Using an Amiga with a perfectly stable 512 line Workbench screen is a wonderful experience.

In fact nearly all the cards available for the 2000, such as a vailable for the 2000, such as bard drives gonlooks and

In fact nearly all the cards available for the 2000, such as hard drives, genlocks and video cards, are compatible. The only exception is the PC exception is the PC

exception is the PC
Bridgeboard.
"Why would people want to use a PC when they can have a system like this?"

says Steve. "The only

reason would be to run something like AutoCad. What I really want to see done is AutoCad re-written especially

HOAD - SHOW BUT - SHOW

Is it possible to un A2000 ls it possible to an A2000 lon Kennedy checks out the rumours by asking the man A2000

box about the same footprint as an A2000, but only half the height. For those who haven't seen a 2000, this means it is just under 19in square and about twice the height of a floppy disc drive. The

TEVE Jones points to the machine on his desk. "This is the way the Amiga should have been designed", he says, proudly displaying the prototype he's been working on for the past three months.

Hmmm. The A1500 certainly appears to be the ultimate peripheral for the A500 owner. It not only comprises a complete change of clothes for the fashion conscious, but also an expandability unheard of for the home user.

Effectively, the Checkmate unit tries to turn the humble A500 into a close copy of the A2000, something attempted before by various manufacturers but never quite carried off successfully. The main advantage of the 2000 over the 500 is the provision of expansion slots which allow peripherals on cards to be allow peripherals on cards to be

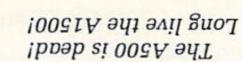
allow peripherals on cards to be mounted internally. Hard drives, modems, video cards and processor accelerator boards can all be hidden accelerator boards can all be hidden away inside the machine, allowing the

creation of a custom designed workstation.

The Checkmate upgrade solution

means your beloved A500 is stripped of its plastic casing and re-housed in two specially designed metal cases – two specially designed metal cases – one to hold the main

motherboard and one to hold the keyboard.
The base unit unit consists of steel



A500s already converted if that's what people want."

It will be possible to use the A1500

in professional 19in rack- mounted systems, something which will immediately cause Amiga musicians to salivate.

"Everyone is really keen on the "Everyone is really keen on the

prospect of running Music-X in a rack along with a couple of synthesisers", Steve smiles. "A certain space administration is also interested in the idea of a rackful of Amigas. I'd love to be able to say 'As used by Nasa'".

LTHOUGH Steve and partner management of Checkmate – soon to change its name to Checkmate Digital – the A1500 is the brainchild of freelancing engineer and part-time genius, Mick Roots.

"It's his baby", says Steve, "we have "It's his baby", says Steve, "we have both been working on this project for both been working on this project for

both been working on this project for no pay for the past three months. We are convinced it is the most important development for the A500 ever".

In between telephone calls from Mr
In between telephone calls from Mr

Public, keen to agree with this view,
Steve showed me around the Checkmate
laboratories. In the corner of one room
we found a box full of futuristic firearms
and plastic body armour covered with
flashing lights. Steve explained they
were Photon Blasters from one of the
newest and most exciting kind of video
newest and most exciting kind of video
games in Blackpool – the fully
interactive sci-fi adventure.
Players take part in the game and

run around a maze wearing the light sensitive armour, carrying infra-red pistols, blasting away at each other in the dark corridors.

All the scoring and sound effects are

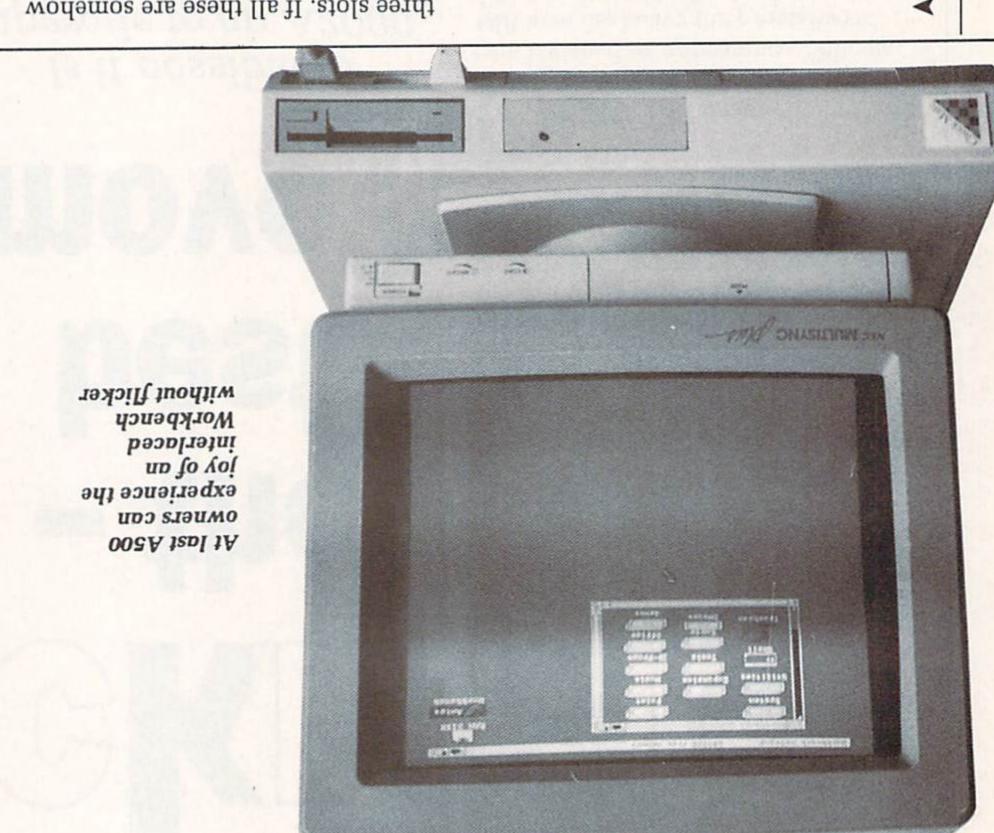
controlled by an Amiga, beavering away behind the scenes. Perhaps rather predictably, it will soon be replaced by a rack-mounted A1500.

Prices for the units had yet to be gived of the time I will soon be a second of the prices for the units had yet to be fixed of the time I wished but it sooms.

fixed at the time I visited, but it seems that the base unit will cost between £200 and £230, and the expansion box about £150. It may sound expensive, but compared to the price of an A2000 it represents a considerable saving. What's more, you can pay for the expansion as you need it, not expansion as you need it, not necessarily all in one go.

And the future? Steve looks wistful:

"Transputers are my personal favourites. A 68030 with a transputer board would be something but I'm not allowed to mention that. So don't say anything about it".



three slots. If all these are somehow filled, yet another expansion box can be stacked, and another if need be. You would probably run out of ideas before running out of slots.

But what about the owner who

doesn't want to take his A500 apart?
After all, it does require invalidating
the original guarantee, and not
everyone is too keen on risking their
investment.

"We will provide our own warranty, the length of which will depend on the age of the machine".

And for those not into DIY

computer building? "For a fee of about £50 we will fit everything ourselves.
We can even provide brand new

Steve Jones – redesigning
Steve Jones – redesigning
showing the Amiga on 01-923 0658

for the Amiga. That would be nice".

The recently announced PC board for the 500 should pacify any users desperate for compatibility with yesterday's technology.

A500 owner? Initially the repositioned sockets and disc drive will be well appreciated, and the separate keyboard is a definite computing equivalent of fluffy-dice. But the real point of the A1500 is that it is the first point of the A1500 is that it is the first point of the A1500 is that it is the first point of the A1500 is that it is the first point of the A1500 is that it is the first point of the A1500 is that it is the first point of the A1500 is that it is the first point of the A1500 is that it is the first point of the A1500 is that it is the first point of the A1500 is that it is the first point of the A1500 is that it is the first point of the A1500 is that it is the first point of the A1500 is that it is the first point of the A1500 is that it is the first point of the A1500 is that it is the first point of the A1500 is that it is the first point of the A1500 is that it is the first point of the A1500 is that it is the first point of the A1500 is that it is the first point point of the A1500 is that the first point point of the A1500 is that the first point point

The disc bay in the base unit will house two floppy drives, or one floppy drives, or one floppy drive and a hard drive. The prototype had a Commodore A590 sitting very happily inside it.

system.

When the user wants to upgrade further he can feel secure in the safely housed inside the case. Due to clever use of pop-out front panels and IDC ribbon cables the entire unit can be customised to an incredible degree; an integral Midi interface, RGB signals an integral Midi interface, RGB signals brought out to the front, an internal video digitiser – all are possible to enable the A500 to be custom-built to enable the A500 to be custom-built to exact specifications.

And if the base unit starts to get a bit full, an expansion unit connects snugly on top, providing another set of

Stoward well

sorutas f mon fo trod A 20.1 moirroy mi

HiSoft BASIC on the Amiga has already proved its worth for thousands of people because of its speed, its compatibility with AmigaBASIC and QuickBASIC on the PC and its ease of use. Now we've added features that make HiSoft BASIC irresistible. Version 1.05 gives you:

 Even more compatibility with AmigaBASIC making it simplicity itself to compile all your existing programs into super-fast, stand-alone machine code.

 Linking with assembler and C programs. Now you can use external functions and sub-programs from either assembly-language or C programs, giving BASIC a power you will find hard to believe.

 Extended editor for 1M users with automatic upper-casing of BASIC reserved words as you type them in, making for clear, easy-tounderstand program listings.

Remember that HiSoft BASIC is not just an incredibly fast compiler producing compact, very fast machine code but it is a compiler programming environment - you create and edit your programs just like you do with an interpreter but then, when you run your program, it is automatically compiled to give the best of all worlds. One package, one price. HiSoft give the best of all worlds. One package, one price. HiSoft salve the best of all worlds only £79.95 inclusive. Upgrades are available to existing registered users at £5.

HiSoft BASI

Invaluable libraries for HiSoft BASIC

The Extend package is available at last! The Amiga Is a difficult computer to program and AmigaBASIC offers little help in using the gadgets, menus and requesters that the operating system supports. Extend gives you an extensive library of sub-programs and functions that is available from both AmigaBASIC and HiSoft BASIC to fill these gaps.

Extend allows full control over the system gadgets, menus and sub-menus, requesters, windows, IFF-format files and much more. It comes complete with over 50 pages of documentation packed with clear examples of the usage of the library and, of course, the library itself (and examples) on disk. All for £19.95 inclusive.

Now you can extend the power of your Amiga's BASIC with this great new package.

Extend

Both Shipping Mow!

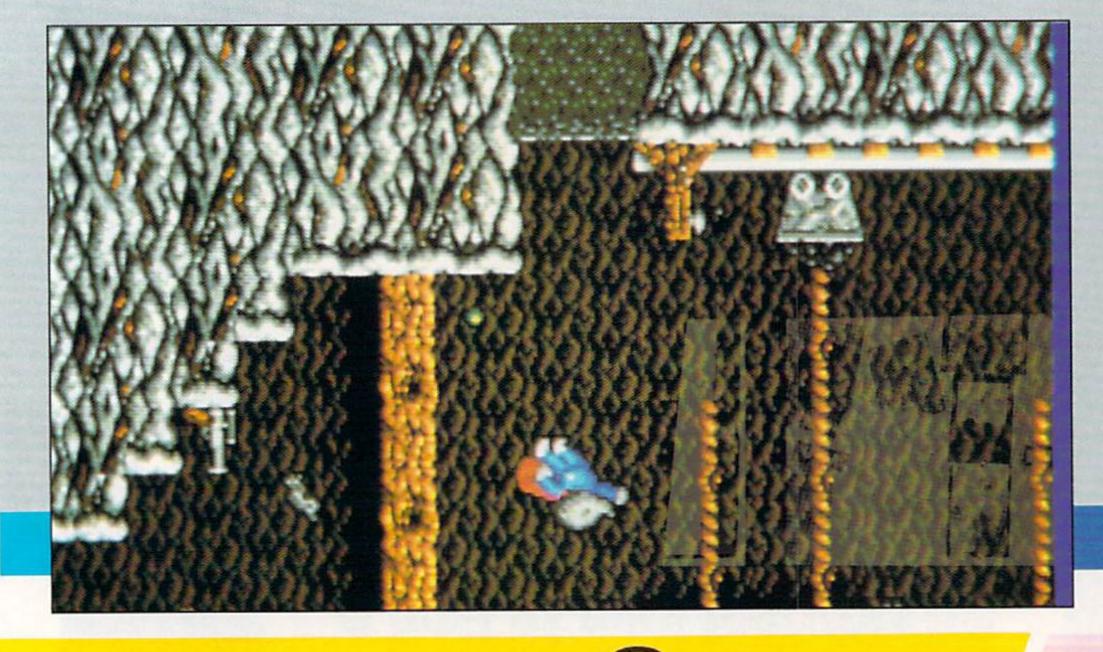
Also available for the Amiga are: HiSoft Devpac version 2 (£59.95), the most complete and reliable system for assembly language programming on the Amiga and it works on all Amigas (unlike some other assemblers we could argue about!); Lattice C 5.04 (£229), the ultimate C package very fast with everything you need including a global optimiser and very fast with everything you need including a global optimiser and extensive, 2-volume documentation.

All software should be available from your local dealer. In case of difficulty, you can order directly from HiSoft by phone, using your Access or Visa card or by mail, using Access, Visa, a cheque or postal orders. Our prices include VAT and shipping within the UK.

High Quality Software

HiSoft, The Old School, Greenfield, Bedford MK45 5DE. TiSoft, The Old School, Greenfield, Bedford MK45 5DE.

Anniga Arcade



Holy moley!

merchandising concern. ons it can turn him into a giant rest, is so high that Gremlin reck-Mole, Monty is Innocent and the the return of Monty, hero of Monty Gremlin. Apparently demand for mort smag won a ni rate of si ever to appear on the News at Ten POSSIBLY the only game character

rots and giant ice-cream cones. Monty fights against Eskimos, par-Japanese feel", it says here, as ladders game with "a modern bns smrottsiq s si slomissoqmi

mid April, price £19.99. into the mass media circus around Impossimole will be exploding

Tanks, and tanks again

since BattleZone, eh? Things have come a long way the Duel with the Desert Fox. sions, the Ardennes campaign and re- runs of the Normandy inva-

Seven different realistically and bunkers. rivers, bunkers, bridges, houses include mines, trees, bunkers, realistic war simulation. Features AMIGA owners are in fear of term interest in what is to be a simulated vehicles will appear in

A varied landscape and differ-Sherman M4 from US Gold. of the best looking so far is being overrun by tank games. One

and abivord bluods anoissim tha

you may ask. And why no? say. Why not Silkworm MCMXC, because it is so much better, they decided to call it Silkworm IV, after the name, these boys have Il litom adt gnibbs bns laupas mal route of devising a fiendish -ron and gaiwollot to beatenl

Supreme gong back in last June's

which scored 96 per cent and a

sic shoot-'em-up, Silkworm,

gamer must remember their clas-

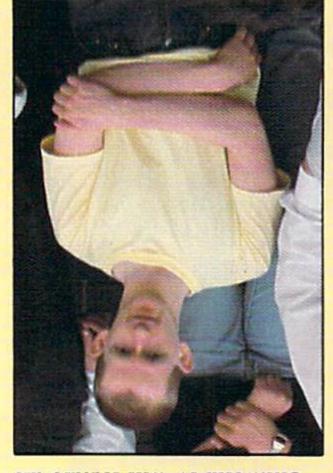
ahead of themselves. Every real

The Sales Curve) are getting a bit

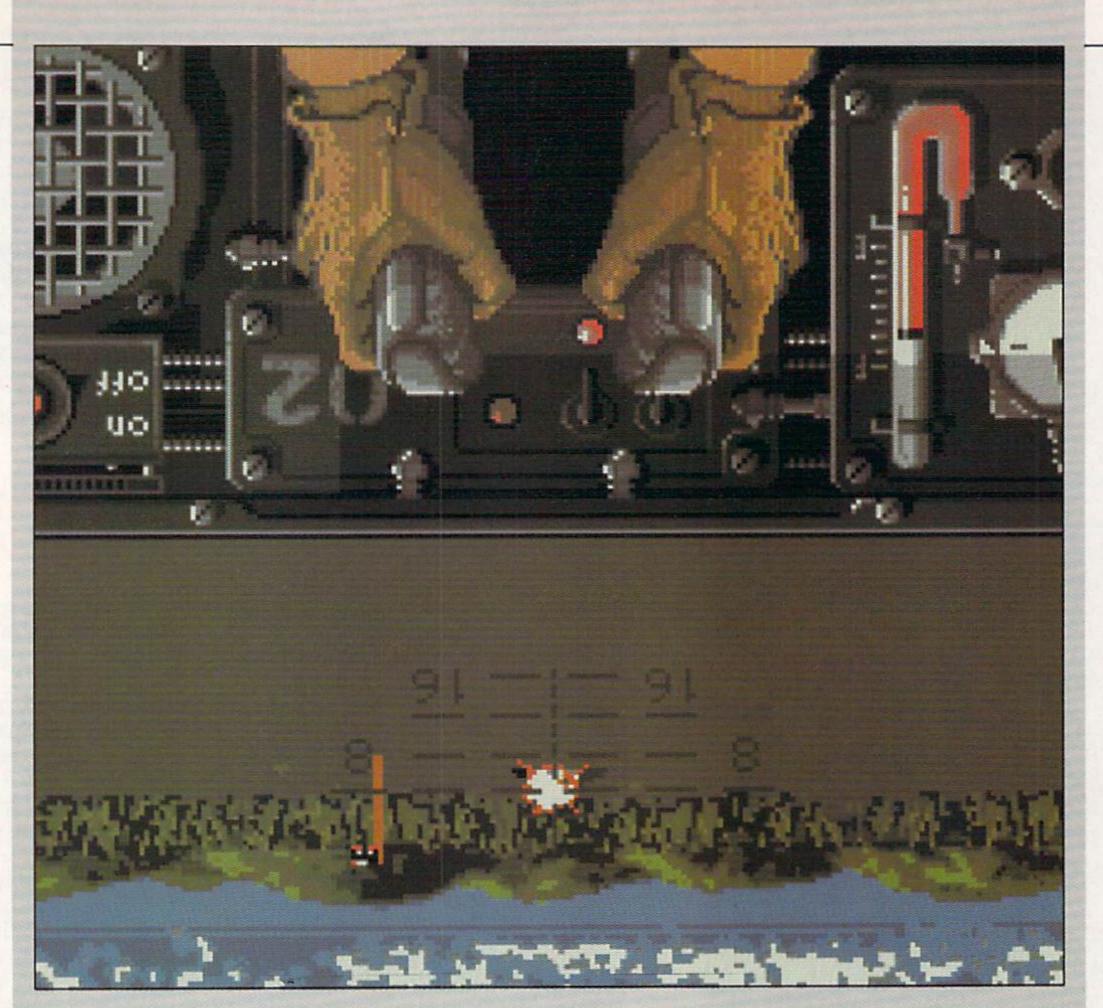
THE guys at Random Access (aka

Amiga Computing.

Silkworm IV will feature the like wonderful and amazing. seems to contain lots of words the programmers' brief and it ing variety. We had a look over seems to be of the uncompromis-Most of the design philosophy



Ronald Weeserick Silkworm IV programmer



BEAIEMED

HTNOM SIHT

1010A % 80

85% Escape from Singe's Castle

85% Rings of Medusa

84% Risk

81% E-Motion

81% Rennaisance

81% Lost Dutchman's Mine

80% Rainbow Islands

78% Hunter Killer

worksbiz %87

78% Soldier 2000

72% Typhoon Thompson 75% Aquanaut

68% Black Tiger

68% Cabal

67% Soccet Manager Plus

09' silstl %74 52% Fire

MAX HACKS

- Faery Tale
- Helter Skelter Fighter Bomber
- Magic Marble
- nosir4
- Sword of Sodan Sim City
- [[sdziW] O Test Drive 2

impressive numbers.

and role-playing.

effects and a collection of other than 200k of sampled sound

rooms, 20 levels of play, more

real-time action against the clock

combining elements of strategy,

player game against the computer,

to sort this mess out. It's a one-

play the rôle of the guy who has

Gremlin says there will be 100

independent position in the men label to reflect its now Archipelagos, is launching a which brought you StarRay and LOGOTRON, the company

Cloud Kingdoms label will be Thunderstrike,

market place.

Amiga Arcade. Gloves, featured in last month's Resolution 101, as well as Kid pue lished on the new Millennium Among the titles to be pub-

In Federation Quest One you

running amok around the ship.

bns gnitstum ansils to Ilut blod

completely wrong, including the

things do, and everything went

deadly radiation, the way these

Earth to seek out strange new life

vey ship BSS Jane Seymour left

TEN years ago the biological sur-

forms and other clichés.

Unfortunately it got bathed in

Follow the worms

disadvantage. this time the Jeep won't be at a have individual playstyles, but In Silkworm IV both vehicles will an updated jeep and helicopter.

auass aspending some supplies

Mo swantsath and the

space for updates. aliens. It looks good. Watch this aliens and then some amazing Also promised are aliens, large

> the game is playing. subsequent levels load in while intelligent loader system, where characteristic Random Access

ball and running up and down the

advanced features like kicking the

Presumably it will also include

corner kicks and throw-ins. Wow!

development team, Andromeda

is to be undertaken by Hungarian

the hit arcade machine. The work

sion of World Cup Soccer '90 from

Virgin is working on the conver-

coming football extravaganza,

few runners-up medals during the

LOOKING to scoop more than a

Net profits

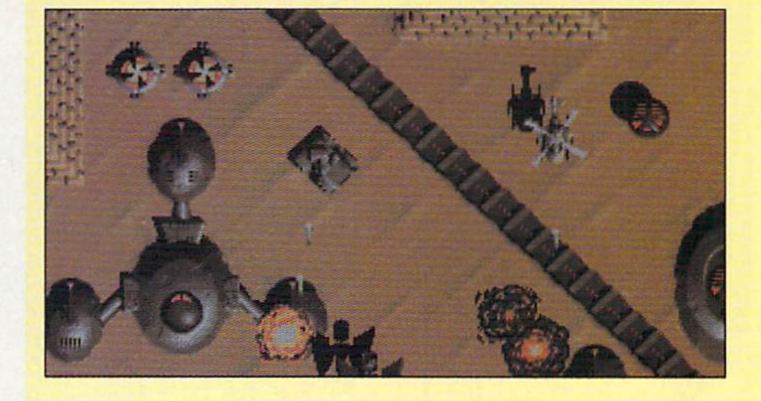
Features will include free kicks,

pitch.

Software.

overhaul of the gameplay, include PAL screen is promised!) and design of all the graphics (a full original, apart from a complete re-Some of the changes from the





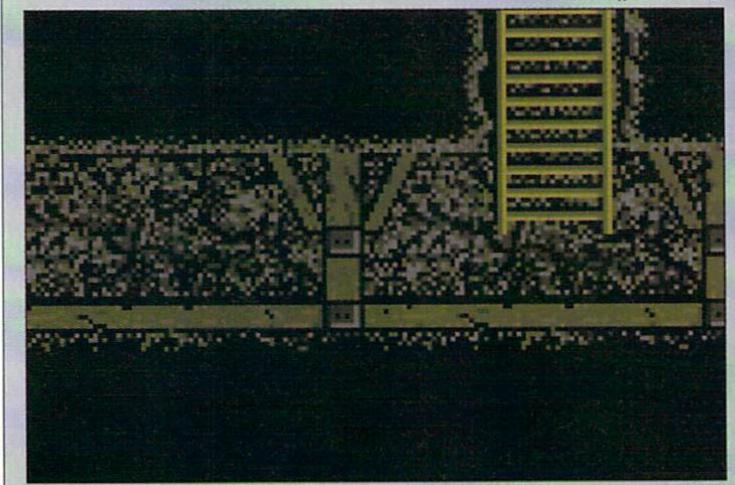


See more aliens

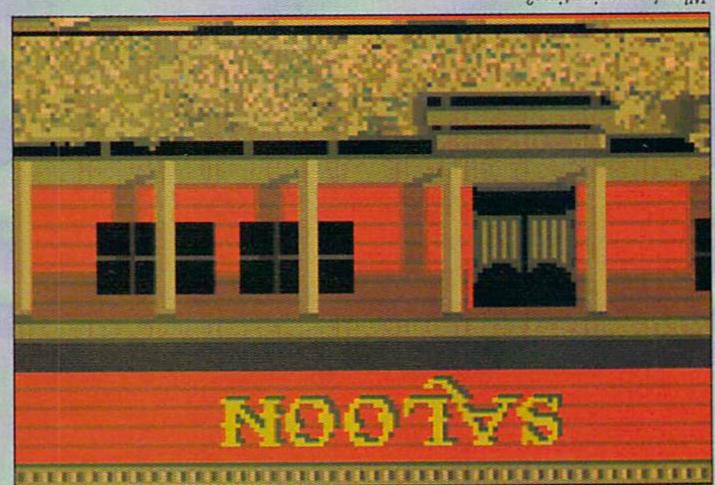


FOLL DILICHING MICHAEL

In a cavern, in a canyon



It's mine, all mine



When's opening time?

(Juggernaut). (Metro), Clara (Transit) and Betsy They come in three models - Alice most of these problems is a mule. ing any ore back. The answer to There is also the problem of carrydehydrate on your way to a mine.

Although most of the screen is

the illustrated sections. generally a fairly comic element in upper display are good. There is terribly dull, the animations in the fairly static, and the map view is

Sound effects are minimal but

noise when you go fishing. well used, apart from the terrible

wards and forwards all the time. get a little boring travelling backwith semi-random features it can to complete, and although packed This game may take some time

tional piece of coding. Many games But behind it all is an excep-

(well mostly) is real genius. these features and remain OS legal ability to create a game with all real programming, but to me the super-scrolling mega-demos are players think that metal-bashing,

Graphics Aura Magnetic Scrolls 26'61J Lost Dutchman's Mine Lucinda Orr

Overall - 81%

Value

Gameplay

Easy money. and take them in for a huge reward. you might be able to capture them these robbers in the dusty wastes

The real money is up in the mounhooks and do some fishing as well. your costs unless you take some Panning for gold doesn't cover

The mountains are even more tains down abandoned mines.

the desert. inaccessible and dangerous than

Sti f'nsood of becoming spectacularly rich. unsound mines on the off-chance intestinal passages of structurally ter to roam around the lower It requires a special kind of nut-

needed if you are not to starve or as grinnsly to sergeb teers A

> an unexpected source of income if when it gets cold and can also be A saloon is a good place to kip tecting yourself.

> The town also features a bank to him though, he's good. the stranger in the corner. Watch you can get into a poker game with

> thir", says the cashier. "Ith that in make a withdrawal. "Thnertainly, cashiers nostrils and request to in, insert their guns into the early cashpoint machine. They ride this particular branch as a kind of houses, and the local bandits treat are not necessarily as safe as earned loot. Unfortunately banks keep your hard (or sometimes easy)

Of course, if you should run into thacks of fivethz or tenthz?"

> had a gold mine and he lost it. also very forgetful. For example, he man. He was Dutch. He was NCE upon a time there was a

instance. the Dutchman to get in and out for must have been enough space for completely full of course, there toN .blog to Ilul saw it tant saw Now the thing about this mine

of his second cousin, but it's all the king but right down to the wife to provide a ransom not only for Anyway, so there is gold enough

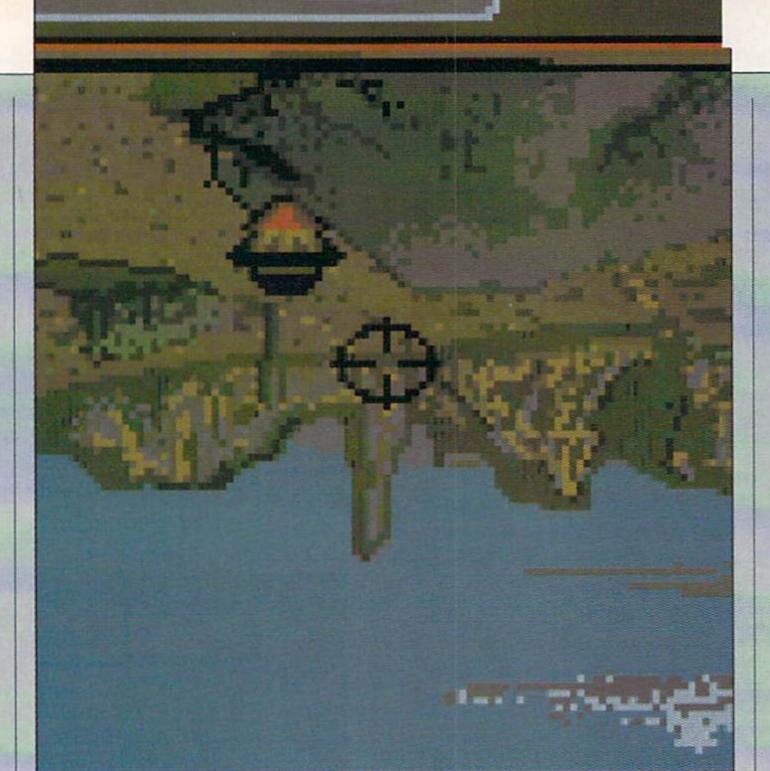
by robbers or drunk by drinks in snakes, caught in cave-ins, robbed being killed by indians, bitten by Do you think the prospect of lost down a hole somewhere.

Neither do I. any way worried the average '49er?

lar scenes. movement and actions in particuis used to control your prospector's select the icons while the joystick joystick; the mouse is used to Control is both by mouse and by ture-cum-financial strategy game. LDM is a sort of graphic adven-

supply of fresh water and food. leys, providing a much-needed -lav ylsub dguoidt yaw sti shriw the southwest. A solitary river bns tesentron edt of seirotimet diw track connecting this backwater sides by desert and split by a dirt small town surrounded on four The game is based around a

-orq tol smrearil osls bns noitsraqo need to run a successful mining store sells the tools and rations you have the money. The Mercantile nial provider that you actually bought in the town, with the peren-Everything you need can be





erwise perfect. Or very close, anybeen better implemented, but othescape coordinates might have and maybe trying to find the final and transforming side of things, tad confusing on the picking up as read that I liked that. Perhaps a

and actually piloting a space ship. player a sense of being in control off is a wonderful way to give the tion. Being able to switch it on and other technical looking informalots of numbers, coordinates and diw qem reber stutsinim s svig of trol panel can be toggled on and off On the left of the display a con-

ing and then collecting the energy around the planets you are explorshooting the containers scattered You can improve your ship by

Power can be transformed into pearls contained within.

to strong line abivorq ban dignarts rotation speed, improve armour various extra bolt-on goodies to aid

"all right if you like this sort of with the old reviewing chestnut the almost perfect gameplay score Unfortunately I have to qualify extra weapons.

You need patience to explore all ates this type of game. some reason not everyone apprecithing" - because it appears that for

time to sit down and play. control the ship and lots of free the landscapes, steady hands to

John Kennedy



1 00 Y L 2 1 1 D E S33 E

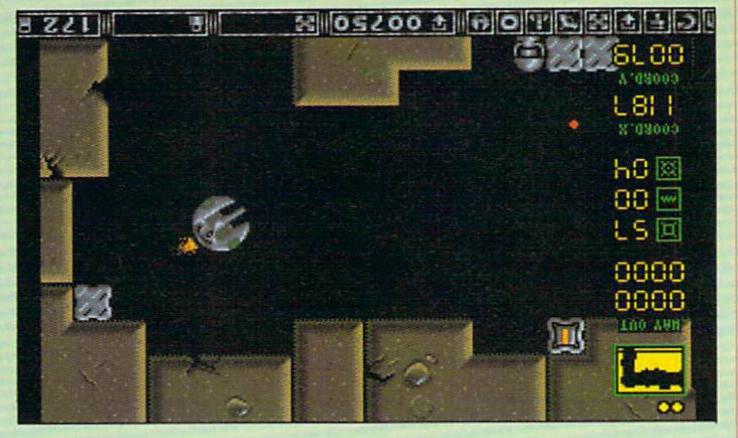
Five hundred points for the air freshener

ment about it. I look forward to the the office made some sort of comof other Amiga games. Everyone in tropop oozing from the 90 per cent welcome change to the bland eleccould listen to it all day. It makes a Tangerine Dream and Vangelis. I vibes, a sort of cross between

computer. played for you on your pocket one of the many missions dis-

Love it. Smooth scrolling. Wonderful stuff. yummy, dig those graphics. And when you do... yummy,

And the music! Freaky weirdo



Oh no! I've broken my Lou Reed album!

and pick things up" variety. enjoy, it's the "rotate left, go right one type of game I particularly cheered me up no end. If there is games on the Amiga has HE recent glut of Thrust type

latest offering is named after a type Plummet's House of Flux, and the First I had Raider, then Dr

All these games feature a ship of knife (rotor-blade, geddit?).

.9SIW into a landscape unless told othercrashes under the laws of gravity the screen, which spins and to elbbim ent sbrawot enedle of

to take forever to point in the oppoit rotates is so smooth that it seems on the large size. The movement as tid s ed ot biss ed thgim ti rotoX ni been criticised for being too small, In Raider the ship might have

site direction. Lovely stuff.

like the graphics. realistic. I think it's fair to say that I ning. Crystal clear and superbly them all, the overall effect is stunenable me to sit down and count my eyesight isn't good enough to grounds, and although these days of 32 colours in its scrolling backgeous. Rotor reputedly makes use Graphically, the game is gor-

amass enough points to make it to real treat is in store when you ulation, à la Cosmic Pirate. The squares. Ah, but this is only a simto birg a nadt srom gnidton si shades of green and the landscape playing, the graphics are various tially, because when you first start You might be disappointed ini-





How are your plans going for world domination?

event of a tie. but their's are worth more in the defenders may only use up to two, can use up to three dice while

land to the empire. taking to add glory to the cause and a battle worth fighting, a risk worth easily be predicted. There is always mathematical luck which can never Combat involves the sort of

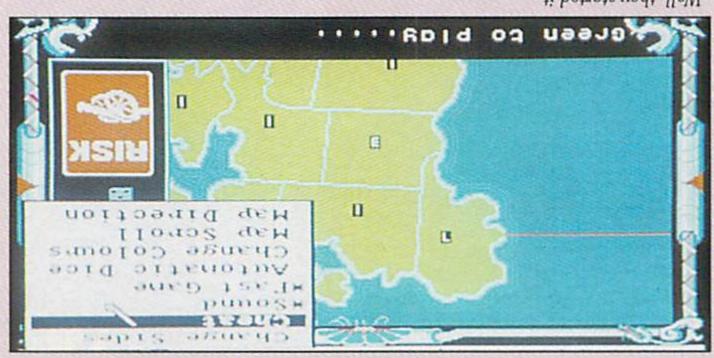
A definitive strategy for world

down to how much you risk. Ils s'ii bne end in the tover rover odds can be narrowed down in greater or lesser extent on luck. The ered. Everything depends to a domination has yet to be uncov-

friends. real competition, play against your worthy but occasionally erratic. For game. Computer opponents are brsod lsnigiro and mort alttil sassim An excellent simulation which

Lucinda Orr





Well, they started it



Some day all this will be yours

be left defenceless. ficient manpower. No country can

ried out by dice throws. and defensive actions are still carfeel of the board game the offensive In order not to deviate from the

Offensive players (sounds like Jeff) course, just in case of accidents. The computer throws the dice of

> pattern. three cards which fall into a certain

> managed to successfully invade at every turn, provided you have You get a card at the end of

> player's turn, provided he has sufattacked at any time during the Adjacent territories may be least one territory.

> > None of them survive so comwith the world. changing only slightly to keep pace They are re-incarnated many times, they did when they were invented. seem just as relevant today as OME games are timeless. They

Risk. vived as complete and unaltered as game. Few strategy games have surplete and unaltered as a strategy

ufacturer, Risk makes it to the tic evolutions and a change of manwooden blocks, through two plasfilmsy board with garishly painted From its first inception on a

computer generation.

On that long path, has it

Then all is good. turned into main-battle tanks? No. on a third of the game cards been Have the hussars which appeared renamed to remain contemporary? changed? Have locations been

your way. globe, destroying all who stand in of five continents of the habitable blacksmith - over the 42 territories thought I was a general, not a I - stiqms as sgrot teum nov vrot an army. From your allotted terri-You are a general in command of The brief in Risk is fairly simple.

obtained by cashing in a set of owned. Further reinforcements are and the number of territories possession of complete continents Extra armies are gained for the



vgətoriz nəəzərolnu no to tid a si sidT

THE TOTAL STREET

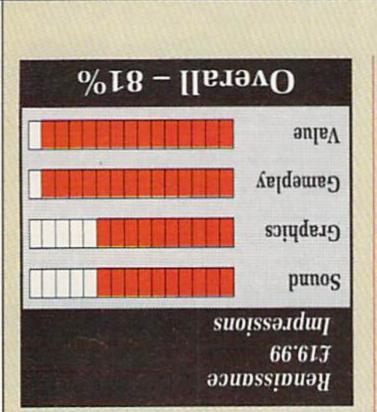


What sort of mushrooms are these? I could've sworn I just saw a giant cream puff

fighting. you can all take turns, without And that four-player option means strangely addictive, aren't they? on with the games. They are afternoon nap. Yes, you can play ones, it's time for my mid-Bring me back to my bed, young

were. ple those chaps at Impressions all on one disc, too. What nice peogames again after all this time. And It is certainly nice to see those

Old Uncle John



36005

Oh dear, my eyesight is fading. those things, I suppose. domain game costs. Just one of that's about how much a public half pounds each. That's strange,

missing from Renaissance. Maybe

instructions say the contemporary backdrops have changed too. The orange graphics". Oh, and the same game but with grey and quite sure. I think it means "the

they only seem to make the classic versions have more features, but contemporary mean? Hmm. I'm not What's that, child? What doesSVBD ber washer. Ah, those were the own once, using a bolt and a rubluxury. I even tried to build my days joysticks were an expensive with a joystick. Back in the old Asteroids, er, I mean Rockstorm, it's just me, but I simply can't play

game costs, let me see, two-and-agames in total, this means each pounds. Since there are eight as this cost about 20 British Back in old money, a game such games look all the better.

fortably? Good, then I'll begin. you a story. Are you sitting com-John children, and I'll tell ATHER round your Uncle

took a break from killing whales some kindly Japanese gentlemen had an ozone layer and rain forests, A long time ago, back when we

Hmm? What was that? My hearand invented video games.

easy to catch. only fault being that they were too tle and intelligent animals, their made extinct. They were very genmighty sea creatures that were Ahh, well you see whales were tle friends. What were whales? ing isn't so good these days, my lit-

Time for some cocoa I should does take some time doesn't it. Watch as it loads, children. Yes, it with this disc called Renaissance. old computer and I'll show you, selves. Push my chair over to my lar among young ones like yourthese games were once very popuyes, video games. Yes, children, What was I talking about? Oh

the old days they would have got after all these years? Probably. In names. Would anyone really mind and yet remain afraid to keep the games are faithful to the originals that Impressions can claim the infringing names. Seems strange all been given new non-copyright Centipede. Except that they have Invaders, Asteroids, Galaxians and games we have here are called In chronological order, the think. Thank you for asking.

1970s and early 1980s graphics and one. The classic versions keep the classic version and a contemporary have two versions of each game - a Thank you. Now on this disc we Pass me my pipe, please child.

away with it.

and had a B in the middle. Started with a B, ended with a C memory is going - I think they on 8 bit computers, such as - my have seen better implementations or not children. Unfortunately, I state of the art back then, believe it Ahh, what games they were... gameplay.

board option, something sadly These versions also had a key-

alien scumsuckers Eat laser death,



New improved invaders

u u u

Deep trout action

don't mind, he bided his time. was a bit of a fanatic, so if you went away - all except one. Zeeke

somewhere on Earth. sages to an unknown recipient ocean he began sending out messhield. Hiding somewhere in the slipped through an anomaly in the Finally he got his chance and

Flair and your mission is to save such an emergency. You are Ric elite squad of fighting men for just Hardy Haigh, had maintained an the United Nations, the familiar armament the Secretary General of the peace, light, harmony and dis-Fortunately for everyone, in all

ocean and attack from below. This the plan is to be dropped in the ble when in contact with water, so Zeeke's ship only becomes visithan opening the fridge.

the world - a task more dangerous

of ST User, In this almost alien full of toxic waste and old copies The oceans are still a bit of a tip, introduces a bit more peril.

> from the eyes? 1999. this revelation when the scales fell one became as equal. The year of up. War was outlawed and everyvious centuries, humankind wised UILT-RIDDEN over all it had done to the planet in the pre-

> Wogan will still be on the telly, but bly won't be finished by then and myself, the Channel Tunnel proba-I think this is a little optimistic

> watched by envious, greedy eyes. and pleasant land, it was being again began to resemble a green made. Unfortunately, as Earth once begun to clean up the mess they The people of Earth had even Everything was peace and light. I suppose anything can happen.

> rounding the planet. the impenetrable force shield surbut were unable to break through They bombarded the Earth for a bit whom was a dude called Zeeke. warlike alien baddies, chief of They belonged to a group of

Eventually they gave up and

Breath taking

Animal Magic



as it appeared. years ago and died out as suddenly first hit the arcades about three old chestnuts. This type of game office is certainly filling up with Anituqmod ngimh adt IV AYBE it's not autumn but

good guy and buy more weapons. only pausing to rescue the odd death through various catacombs, you must ply a path of blood and weapon, not the newspaper) and ter with a morning star (that's the is fairly simple. You are a mad nut-The plot, like all the best ones,

to be a little sloppy. though the joystick response tends are certainly of areade quality and a platform game, the graphics A cross between a beat-'em-up

graphical splendour. sti lls ni sins gente in sli its old-headgear now, but a prime Nice graphics, nice sound, a bit The game is playable enough.

Green

Ever get the feeling...

Green



enough to buy another title.

By far the best feature of the sion of depth to the screen. very well done, giving a real illu-

when he changes direction, are

the depths is a nice touch. effects of bubbles rising through sense of atmosphere is created. The game is the sound. A palpable

not dangerously persuasive, there Overall, although Aquanaut is

> experimenting with the equipment enough time in certain spots for baddie-bashing, though there is tight to allow much involved ther supplies of oxygen, are too

the diver as he enters the water and tion sequences, notably those of impressive, but some of the anima-Graphics are not incredibly you may have picked up.

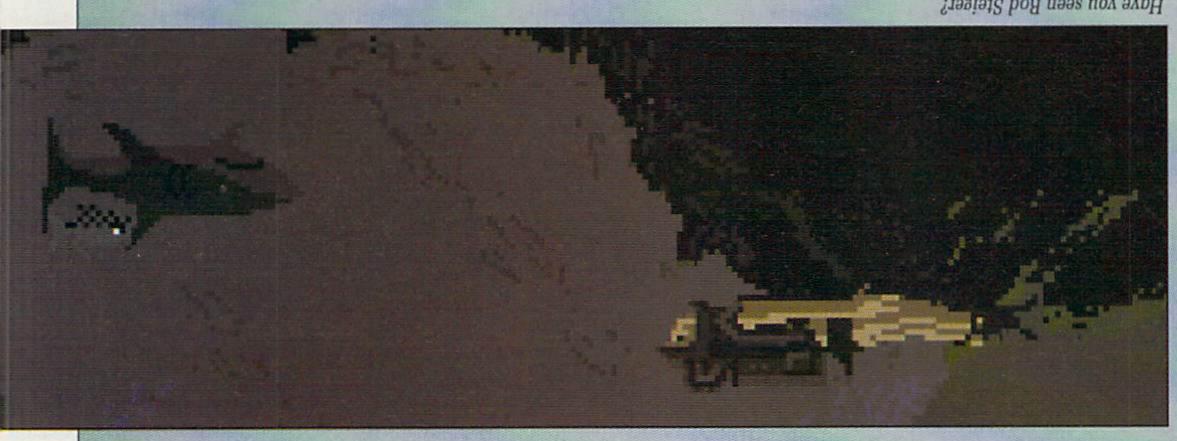
weapon seems to be in order. breeding faster. Some sort of begun to get nasty. They are also sharks and killer jellyfish have environment the once friendly

your travels. to pick up at designated points on equipment will be dropped for you than a harpoon gun, but more Initially you have little more

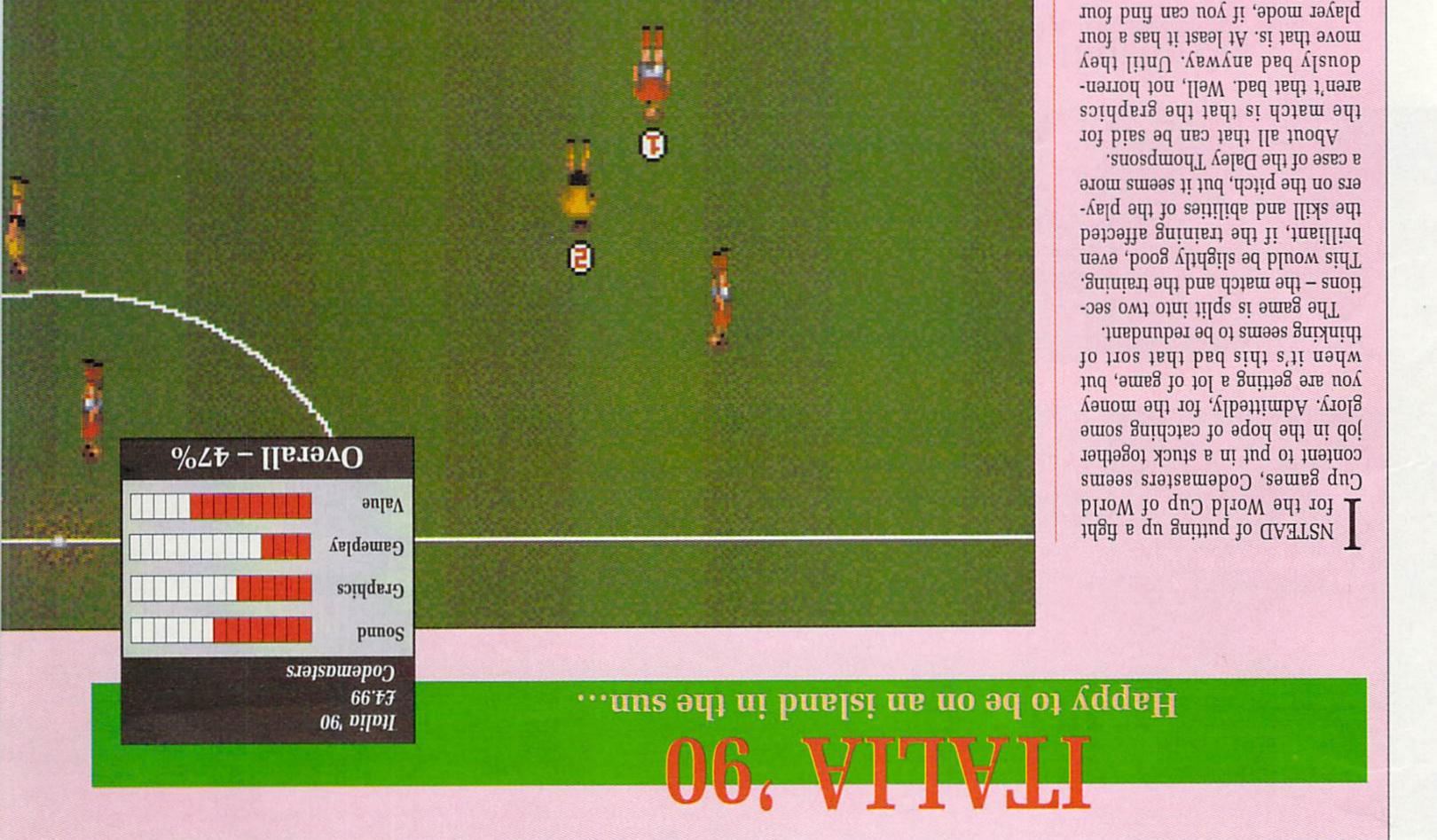
watch out. WW2 mines and depth charges, so believed to be able to reproduce that is known is that the aliens are enemy is an unknown quantity. All be of any use to you since your This equipment may or may not

the way. at the beginning except stay out of ied, there just isn't that much to do although the backgrounds are varexcel. The scrolling is jerky and blaster. In this respect it does not of a sideways-scrolling alien Most of the game takes the form

points, where you must collect fur-Time limits between the drop



Have you seen Rod Steiger?



Green

people bored enough.



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CARTRIDGE IS HERE

人上ITILの-8323383

STOM WOLION WODE

through the tricky parts! adjustable from full speed to 20% speed. Ideal to help you Now you can slow down the action to your own pace. Easily

MESTART THE PROGRAM

you left off. Simply press a key and the program will continue where

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ALL MEMORY AND REGISTERS INTACT.-INVALUABLE FOR THE DE-BUGGER OR JUST THE INQUISATIVE! REMEMBER AT ALL TIMES YOU ARE INTERROGATING THE PROGRAM IN IT'S "FROZEN" STATE WITH Show memory as HEX, ASCII, Assembler, Decimal Ocopper Assemble/Disassemble.

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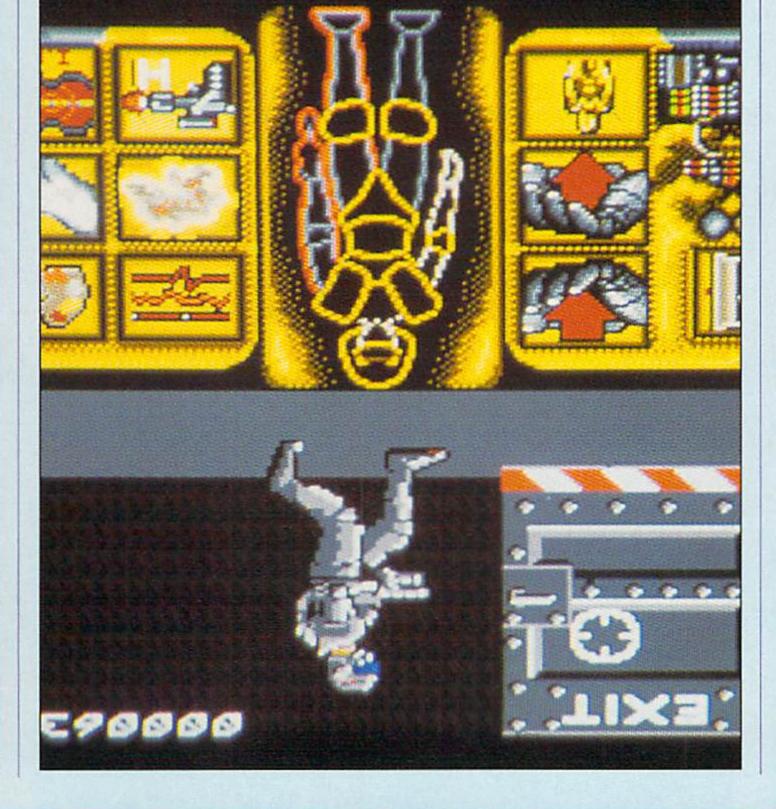
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Send in the girls



Don't be fooled - there's no way out

rather than one at a time.

Apart from the arming stage and

innards, cast asunder by high perately try to hang on to their grotesque in parts as terrorists desare poor. They are actually quite the parallax effects, the graphics

is a fair bit of gameplay, but when differing graphics and layouts there begins to pall. With five levels of brutally dispatched, the sound fised squeals of terrorists besing Once you get bored of the digivelocity fire.

little more than a reaction tester. it comes down to it, Soldier 2000 is

Thunderbolt, Operation Ad Operation Wolf, Operation the most popular arcade games like Mind you, so are quite a few of

Nauseum... Green

machines fighting simultaneously three well-equipped killing to combat the baddies better with scrutiny. Obviously you'd be able bit of the plot doesn't stand much

preferably through a third eye -

- idgil adt aas ot absm ad isum

ropes, Uzis blasting as they come.

from trapdoors or abseil down

ally anywhere, some even pop up

a hole in one of the chair-bound

Mind you don't accidentally blow

who appear from all directions.

Take careful aim at the terrorists

hostages by mistake.

girlie from side to side.

Terrorists may be hiding virtu-

A certain number of terrorists

always send the next one in. This



0verall - 78%

Value

Gameplay

Graphics

Artronic

Soldier 2000

gnings sint gnindew

What the well dressed marine is

66'613

punos

a bit...Fire! Left a bit, right

If your soldier fails you can

before you can free a hostage.

and choosing your weapon are all ing IR goggles, going through doors Picking up and dropping, activatother than left, right and fire. set of icons controls any actions

and proximity mines can be

and other goodies can be picked up

the left or right. Bullets, grenades

corridor. Baddies may attack from

representation of the player in a

isn't much good without grenades.

your weapons - a grenade launcher

Remember to get ammunition for

the left-hand side of the screen.

it will appear on your trooper at

the lights go out. There is no time

want to know where you are when

Don't forget infra red sights if you

and experimental pulse-lasers.

machine guns to grenade launchers asingle-shot hand guns through

choose from, ranging from small

stand up. You will not be allowed

they are so overladen they can't

litan awob madt wole lliw emati

they can't carry everything. Heavy

tough, but they're still human, so

the arming stage, where everything

because I saw one in her bikini at

cute girlies. I know they are cute

highly-trained, ruthless, brutal,

businessman, so the crack anti-ter-

where, has captured a balding, fat

Liberation Army, was it the Free F.

rial. Was it the Milton Keynes

Who exactly caused it is immate-

Tor hostage scene of the future.

O it has come to this; the hor-

Who cares? Someone, some-

ni gniog si meet team is going in.

W. De Klerk movement?

You control a squad of fit,

OK, so these girlies are pretty

to critically load your troops.

There are 14 different items to

As you choose your equipment

The scenario begins with a 2D

In the lower half of the screen a

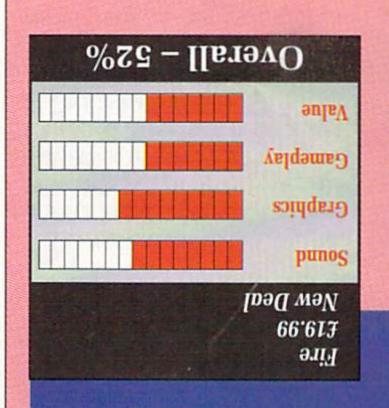
dropped.

to fool about.

icon controlled.

nearly dead a message will appear areas of her anatomy. When she is showing the damage to particular sentation of your future trooper There is also a pictorial repre-

background scroll as you move the scrolling. About three levels of of isometric 3D view with parallax mask. The viewpoint is now a kind a fresh grip on your bullet-proof you into a whole new game - take Going through a door will take on the Heads Up Display.



faid? s'gnineve as to wolgrests ent ni village huts. Don't they look lovely is definitely ex. Look at the little wards like a machina whose deus copters as they plummet ground-You could watch the other heli-

carrier bit. of shields) it's back to the aircraft (very quickly, you only get one set game itself. Once the game's over aircraft carrier bit, and then to the nasty helicopter taking off from an musick. It then goes on to a rather gatory (awful) French Guitar it is loaded. It starts with the oblithe action or the noise all the time annoying games that doesn't let up Fire is one of those deeply

many, though. games than Fire. There aren't To be fair, there are worse

Stewart C. Russell

ENEF CHIEFE

British rail unveils latest fare dodging counter measures

Remain Unbroken! C'mon people, sing May The Circle poetry and general being together. ple and there'd be dancing and -turned on its side and painted pur-Earth and the Pentagon could be down and poured back into Mother and all the guns should be melted all this violence is very negative flowers to people and saying that you should be flying around giving

down. then defoliate it and burn the rest the scenery (it's very bright) and not an option. You could admire what you're doing, chilling out is always the option of keeping doing On the other hand, there's

flash as they detonated against the

tance, shortly followed by the red

torpedoes vanishing into the dis-

seeing the bubble tracks from your

mas something ever so satisfying in

black and white arcade one, Depth

since I first played that classic

always enjoyed sub games, ever

game hinges on the fact that I have

thing which the software houses

quite a new concept and not some-

Amiga software at realistic prices is

than a five pound note. Selling

costs one shiny new pence less

I am a miser and Hunter Killer

The first boils down to the fact that

have had much experience with.

My second reason for liking the

Charge, all those years ago.

Ah, those were the days - there

"! dol mo s'tent "Hey, we don't dig being shot at those Middle Eastern types that, pledge allegiance, and tell some of

an argument and the safer end of a to shie tight that the tight side of think that name out) and you've (must've taken weeks of work to the helicopter gunship called Fire in general. You (who else?) pilot Age and mellow about humanity now, Fire isn't about being New As you've probably twigged by

this a little uptight of you? Maybe everything that you can see. Isn't Defenderesque manner, shooting You scroll along, in a pleasantly gun are one and the same.

Burn baby burn

the whole thing. blokes turn up and make a mess of nicely, when all of a sudden these a little nation coming along quite L 'em? I mean, you've just got ERRORISTS. Arn'cha sick of

on the plants of the up a free market economy based lace. They have the cheek to start country, heavily repressed popu-Or another scenario: Small

Erythroxylaceae family.

guessed, it's cocaine I'm on about. then deeply unhappy. Yep, you assured for a very short time, and unhealthily happy and selfjust happen to make people go extracts of the Erythroxylon plant little earner, but for the fact that Nothing wrong with that, nice

lems and still be in time for his guy could get rid of all those probgunship and lots of other stuff, a deal. I mean, given a helicopter Hey, but these things are no big

But The Powers That Be have morning expresso.

commie subversive missiles, boat people, destroy some pinko er, the North Pole, rescue some nals hiding out at the North Cold, mind if you got rid of some crimithought of that, and wouldn't

Overall - 78% Value Gameplay Graphics punos Il Blitz 66'#3 Hunter Killer

Hunter Killer allows me to do all hull of some huge enemy cruiser.

and ready to fire. Bliss. a Japanese convoy, tubes flooded ity to surface right in the middle of patrolling the Pacific and the abilto mobeent atta of the extra freedom of

able price. worthwhile challenge at a remarklevels, Hunter Killer presents a night scenarios and several skill With multiple missions, day or

John Kennedy 'em-ups. Perhaps I'm getting old. ence to the latest scrolling shootthis rather lo-tech game in prefer-Suddenly I find I'd rather play

> much? Well, there are two reasons. waves and charts and grey blobs way of those I'm afraid, Mostly So what makes me like it so Run silent, run cheap

state of the art, and the deck and the edges of the screen are hardly The information dials around Japanese frigates. which are supposed to look like

churn away, the explosions department either. The engines Sound? There is not a lot in that periscope views are disappointing.

Nothing fancy. surface. No tunes, no speech. nhooping whenever you dive or to tid a seob nerie and bas abolqxe

details are downright wrong. laughable, and in some places narine are so simplified as to be desired. The mechanics of the sub-Killer leaves quite a lot to be tunately, as a simulation Hunter Historical accuracy? Unfor-

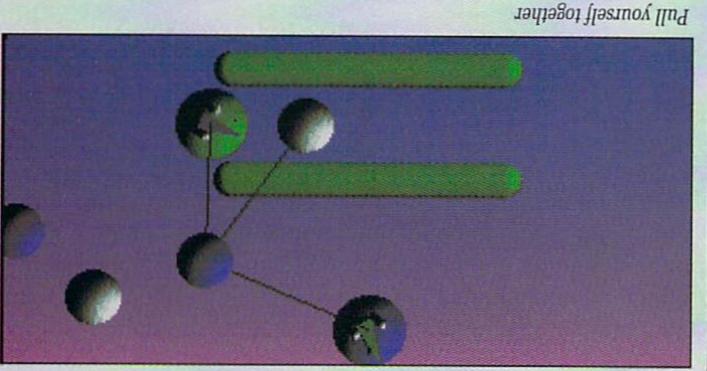
> marine simulator. -dus a diw emit sidt, mobfegbud has plummeted to the depths of enough the price of Amiga software marketing men, and sure IAE! DIAE! DIAE! said the

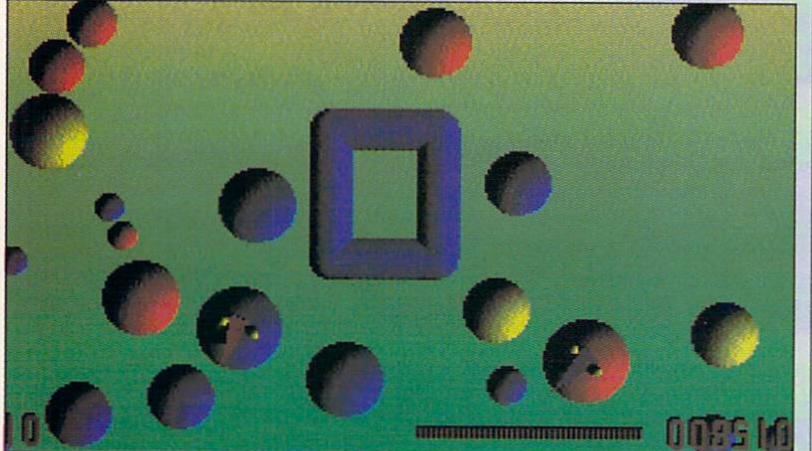
of 200 feet. knots and maximum diving depth dards, with a top speed of about 16 it a very small craft by today's stantubes and a deck gun. This makes marine, armed with 10 torpedo command is a Gato class US subof Pearl Harbour circa 1942. Your missions, all based around the area Squeezed on to the disc are 14

Sithiw fiel ew etc. opment costs, what sort of game ditionally was put down to devellonger paying the price which tra-Now that we are no

Graphics? Naw, not much in the

Feelings, nothing more than feelings... NO TO VIEW





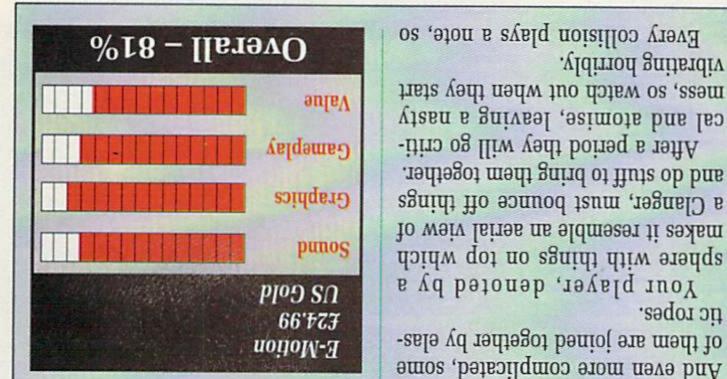
Population explosion

futuristic appearance. ics lend the game a weird and good imitation. Ray-traced grapharen't in HAM then they're a fairly Mellotron. If the backgrounds like being trapped inside a piano lessons. Excellent effects, reminds me of my sister's early when the game gets busy it

same team was also responsible for tive thinking games. Mind you, the so it is used to these highly addicteam which produced Pipe Mania, Assembly Line, the development Motion is brought to you by more cunning than the last. E-Fifty levels of puzzles, each

Xenon II...

Green



ing to knock a couple of brightly pect, will shortly spend all day trymoney. Still more people, I susof people managed to make all that trying to work out how the first lot money. Other people spend all day U making huge amounts of OME people spend all day

because, you see, I have played E-I make this astonishing claim coloured balls together.

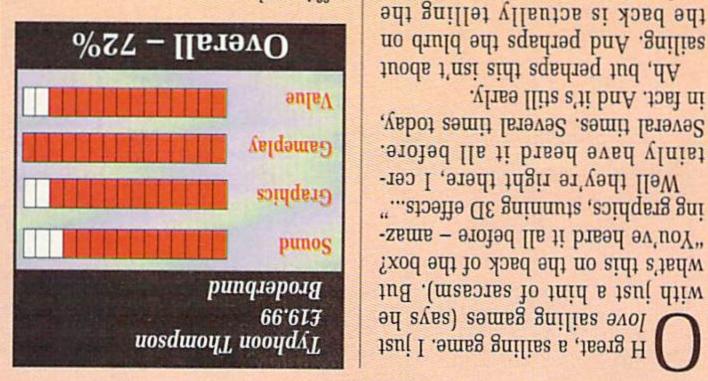
 a sort of spherical apartheid. from any differently coloured balls balls while keeping them away knock together similarly coloured ence would be more apt, is to though perhaps the term experi-Motion. The object of the game,

tic ropes. of them are joined together by elas-And even more complicated, some there are repulsive forces at work. the balls don't like each other -Simple, you might think. But

cal and atomise, leaving a nasty After a period they will go critiand do stuff to bring them together. a Clanger, must bounce off things makes it resemble an aerial view of sphere with things on top which Your player, denoted by a

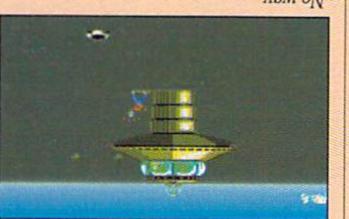
Every collision plays a note, so vibrating horribly.

Faster than a speeding fillet



off into the sea.

stunned in the water. the wreckage and splash around - the sprites - are thrown clear of flyers have been hit, the occupants guardians, nice chaps. Once the weapons supplied by the flyers by shooting them with the You get your own back on the



YDW ON

lected. Must be hard wear sprites. destroyed and must always be colstun the them, the sprites can't be No matter how many times you

Not enough to interfere with the ocean slows things down a trifle. of creatures flailing around in the third of the four islands, the number By the time you have reached the from the even more abundant flyers. with more and more sprites released island. Each island gets trickier, balloon) and start on the next sented with the fabulous treasure (a have been gathered up you are pre-Once all the island occupants

reminiscent of the bad old days of are a little thin at times, rather Sound is disappointing. Effects gameplay, mind you.

AY sound chips (the one the ST

of the game: Simple and addictive. The plot is simple, but that is part gameplay? No, I don't think so. spent here. At the expense of the to watch. Clearly a lot of effort was well executed, humorous and fun The animation, however, is very

Јори Кеппеду

Look out, your head's on fire

and explode, or just bumping you ble, making your sled go purple whether it's trapping you in a bubhappily do something nasty to you, are the Bad Guys, and will quite characteristics and weapons. They brands, each with distinguishing

The flyers come in several

islands, each containing a number

lage. The village consists of seven

-liv bnslzi fzrif eff brawot bnslzi

trol but, instead, quite easy and fun

doesn't mean darn difficult to con-

able variety, which for a change

sleds are of the highly manœuver-

item you collect. The mouse-driven

and an extra life for every masonic

which to explore the ocean planet

objects, such as daggers, hammers

freemasons by collecting various

turn help them join the local

will aid you in your quest, if you in

must save the day by rescuing a baby

sense. From what I can discover, TT

what little there is doesn't make

Thompson's plot is minimal, and

Like all the best games, Typhoon

Well I never, perhaps I'm going

opening animations and the cutesy

Could it be the rather excellent

truth. What makes me suspect this?

sailing. And perhaps the blurb on

Several times. Several times today,

tainly have heard it all before.

abducted by some water sprites.

to enjoy this game after all.

tune? Yes, I think it could.

in fact. And it's still early.

The mysterious Spirit Guardians

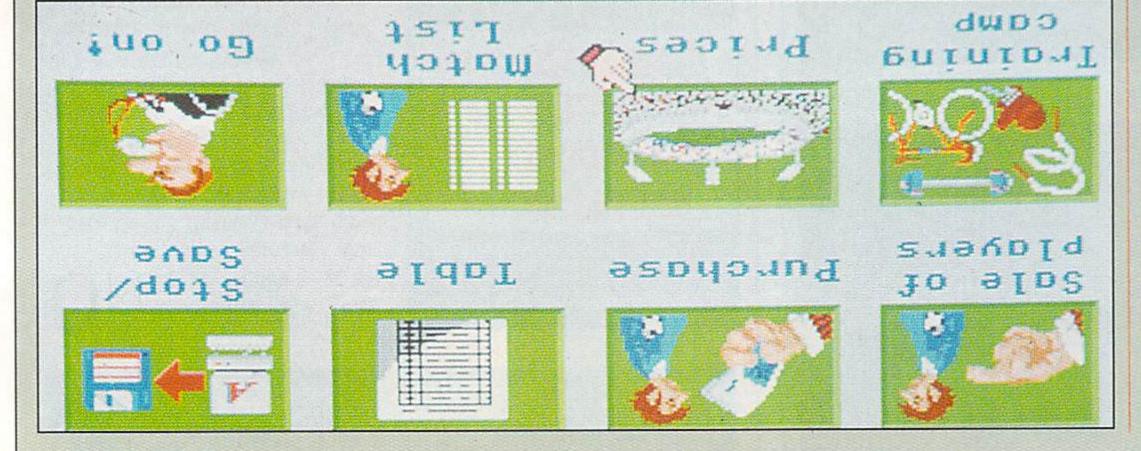
They give you four Jet Sleds in

So off you set from the home

of flyers.

to play with.

and balloons.



Where's the haircut option?

match, so I just peeked at the scoreto hit the ball backwards and for-I couldn't face watching the seem too athletic. They just seemed .snois sprites and they certainly didn't I didn't want to risk any suspen-

Although my team were playing out of my field of vision. wards until it went into the net or

that lot. while. I'll never walk alone among chanting got on my nerves after a got lost, I suppose. Their incessant blue and white scarves. Must've ple, the crowd all seemed to have in red and the opposition in pur-

I told them to be as meek as lambs. and sent them out again. This time never know. I swapped in the subs aged to pick up a yellow card I'll down two-nil. How the goalie man-Come to half time we were

> Selecting the team for the big ing a slider with the mouse pointer. -vom se ysee se sew ii ,esuh on sew bumped up the ticket prices. There my first financial decision and

> the two subs. classic 4-3-3 formation and chose desperate enough. I decided on a to biqute sew I ii noitisoq to tuo because I could get them to play team which position to play in, put up a few markers to show the match was equally as easy. I just

> looked exactly like hardware From this distance the players ing Football Manager on my C64. highlights. It reminded me of playdecided to watch only the match I took position pitch side and

> > Affer hurrying back to my office my goalie have such a good attack Lineker guy anyway? And why did at that moment. Who was this looking too good on the yacht front transfer market. Things weren't

J'ansi ti JUWI - PMDL it isn't. ther was the scoring system for the play were not mentioned and neime much good. The finer points of given. Unfortunately it didn't do I took out the manual I had been

importantly their worth on the

positions, their fitness and most

ers skills - their ability in different

a complete breakdown of the play-

a quick look over my players. I had

the day. You can't say fairer than

all willing to give 110 per cent on

I've got a good set of lads who are

against the other 16 teams? Well,

Rangers (honest) but you might say

going by the name of Green's Park

there was an English league team

ball club. I didn't even know that

manager of a second division foot-

▼ V Know why they made me

ELL, Brian, I don't really

it was cut out for me.

How do I rate my chances

Back in the dressing room I had

rating?

crowd-puller I reckoned, so I made Plymouth Argyl. Sure to be a first match was at home to I checked the fixtures list. Our

Overall - 67% Value Gameplay Graphics punos Starbyte 66'61J Soccer Manager Plus

you'll excuse me I have a man to

match in the dressing room. Now if

Brian. I mean, we literally won this

aggressiveness to four out of nine.

staying out of trouble, I upped their

out for it. No more namby-pamby

goalie and gained the team an

market got rid of my troublesome

This toned up their skills a bit and

to an expensive training camp.

ready. I packed the whole team off

unlucky in that the other side

of the day perhaps we were a little

halves of 45 minutes and at the end

believe that football is about two

seemed to make the game go

board every now and then - it

quicker, Full time score: 6-1.

"Well, Brian, what can I say? I

Right. Next time I would be

A few dabblings on the transfer

This og of medt blot I emit sidT

"Completely over the moon,

Green

see about a yacht..."

Final score: 3-2 to us.

excellent striker.

got them really fit.

scored more goals".

fbləilbim ni Maradona toat al

9010d 7 91

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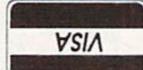
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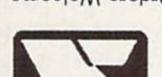
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LIUVVU JILUIVI JIUUULU VUL

Third time lucky?

the helper to provide vital clues. which you never got past, and use the levels in the original game huge game. Now you can practice Lair discs to form one staggeringly incorporate your original Dragon's

fling feature will produce one long, combined epic, the random shuf-If you sit down to play the entire

experience. Immediately it gets 15 like this is always an interesting Deciding the ratings for software unique stunning performance.

generally rather good. they are brilliant, astounding and for graphics because, quite simply,

things I have ever seen on the this sequence is one of funniest gets attacked by a large monster; door he hums to himself and then when Dirk walks up to a strange Sound also gets a 15 because

be generous here, because at least improved a great deal. I think I'll overall ease of use has been not perfect by a long way, but the Gameplay is the tricky one. It is Amiga. It totally cracked me up.

Value? Hmmm. That's where it it's getting better.

Overall - 85% Value Gameplay Graphics punos Empire 26'777 Escape from Singe's Castle



dinner? - Dirk meets the Goons

ever written. look like some of the best software sions are suspiciously starting to denly means that the Amiga vera Don Bluth production, this sudphenomenal graphics and sound of

search of an exit, you have total Drongo flails around a maze in cally possible, because as Dirk the sequence shows this is theoretisee more flexibility - the labyrinth Of course, it would be nice to

almost indefinitely until you either This sequence can be played control of the direction to take.

will it would be breathtaking. allowed as much expression of free wall. If the rest of the game a wrong turn and crashes into a find the way out or poor Dirk takes

drive, 512k system. will run on a bare minimum, one extra memory as possible. Plus, it unlike the prequel) and as much drives, hard drives (any make, because it will run with floppy friendly game I have yet to see, This must be the most techie-

number of loads. things up slightly by reducing the your particularly setup, or to speed the game to be shoe-horned anto sequences can be skipped to allow Sound and certain animation

the better the game gets. you have connected to your Amiga, Basically, the more hardware

As an added bonus, you can

level just right. addicts will be able to get the skill

as this would be so-so, but with the mal game, a playability rating such of "quite enjoyable". For any northe gameplay to the dizzy heights Dragon's Lair might have pushed Yup, looks like this sequel to

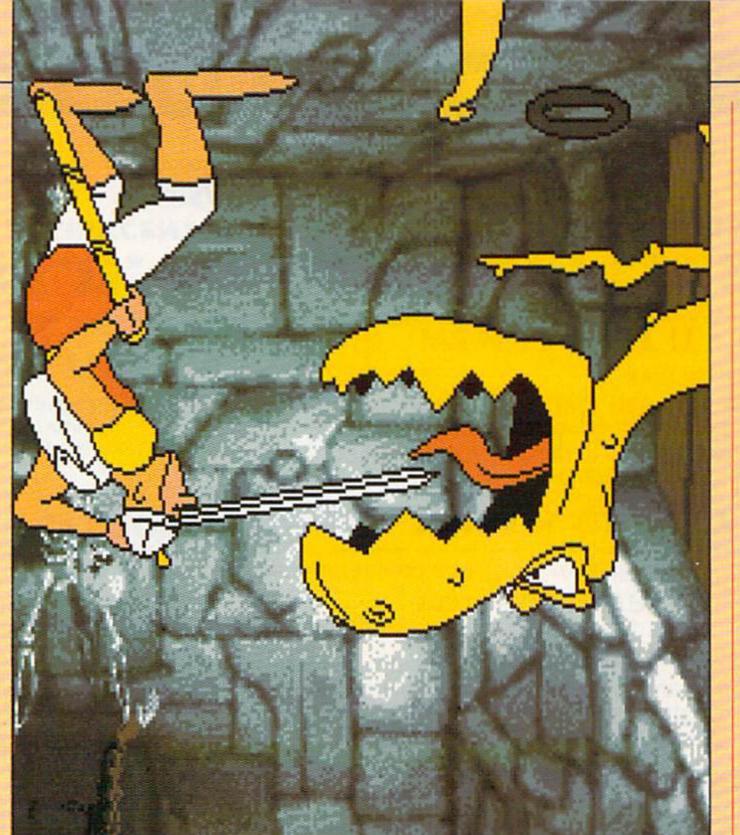
First impressions? Sigh. In com-Escape from Singe's Castle discs. vent hopes as I unpacked the five practice runs. These were my fer-Lair and Space Ace, were only the two previous games, Dragon's for the Don Bluth crew? Perhaps L L time? Is it third time lucky AVE they got it right this

ment - the joystick wasn't plugged impressions were of embarrassshall I put it, sparse. Second ations, gameplay is yet again, how mon with the other Don Bluth cre-

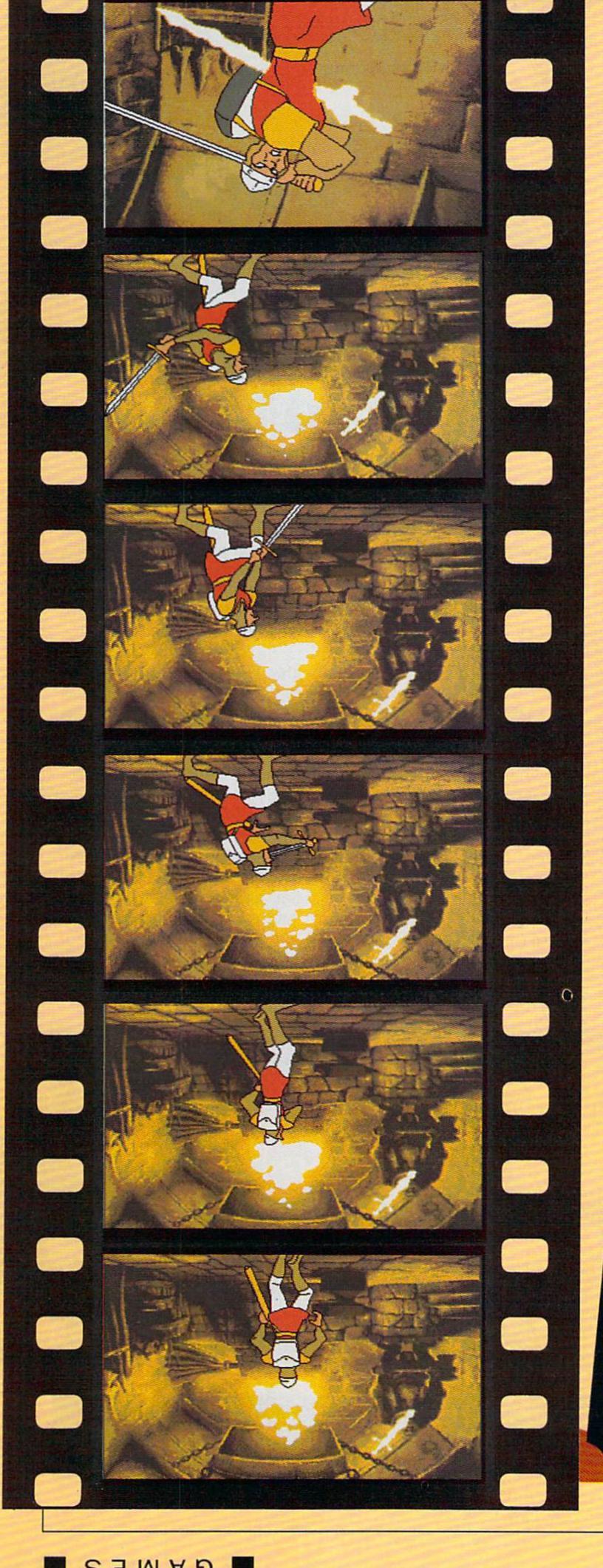
tion has been markedly improved. then" as before, but the presentatype of "move left now, move right Admittedly, gameplay is the same tainly makes a difference. Try again. Ah, the joystick cer-

gle in a certain direction. subtle hints, such as when to wigwill appear on-screen and drop Plus the invaluable "helper" which if it all doesn't multi-task as well! saved game positions and stone me random order of scenes, up to five levels, choice of number of lives, Now we have three difficulty

enced gamers and hardened els, it means that both inexperi-Combined with the difficulty levbefore things start getting difficult. advance quite far through the game The helper means you can



50 AMIGA COMPUTING May 1990



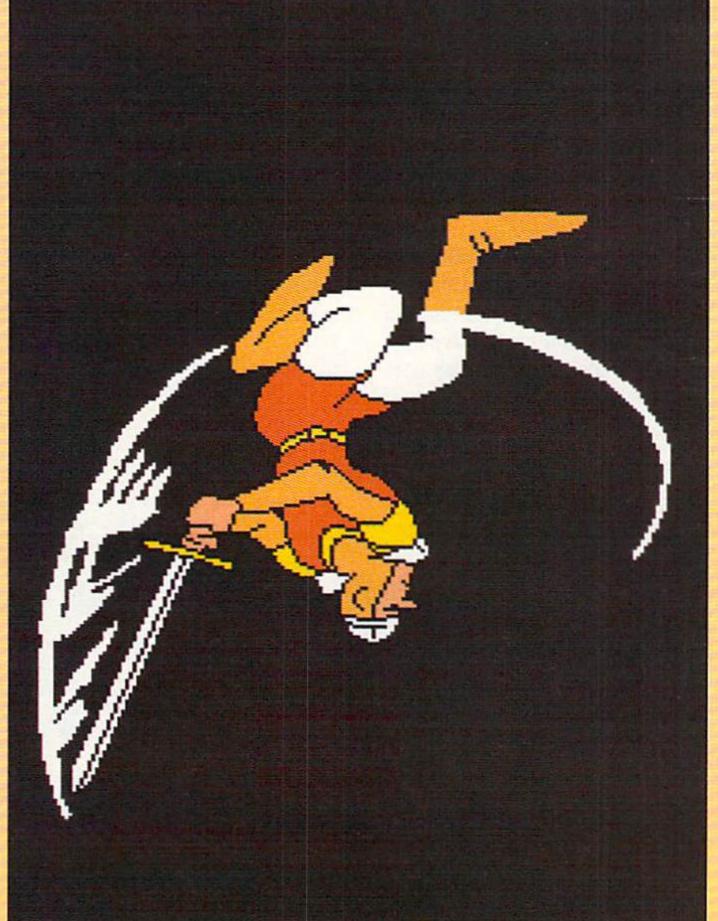


all falls down. The price is steep and will only encourage Singe's Castle to become the next number one pirated game, especially with the unprotected discs and relatively simple password system.

Make sure you see this game, it uses the Amiga in the way it was intended – to amaze.

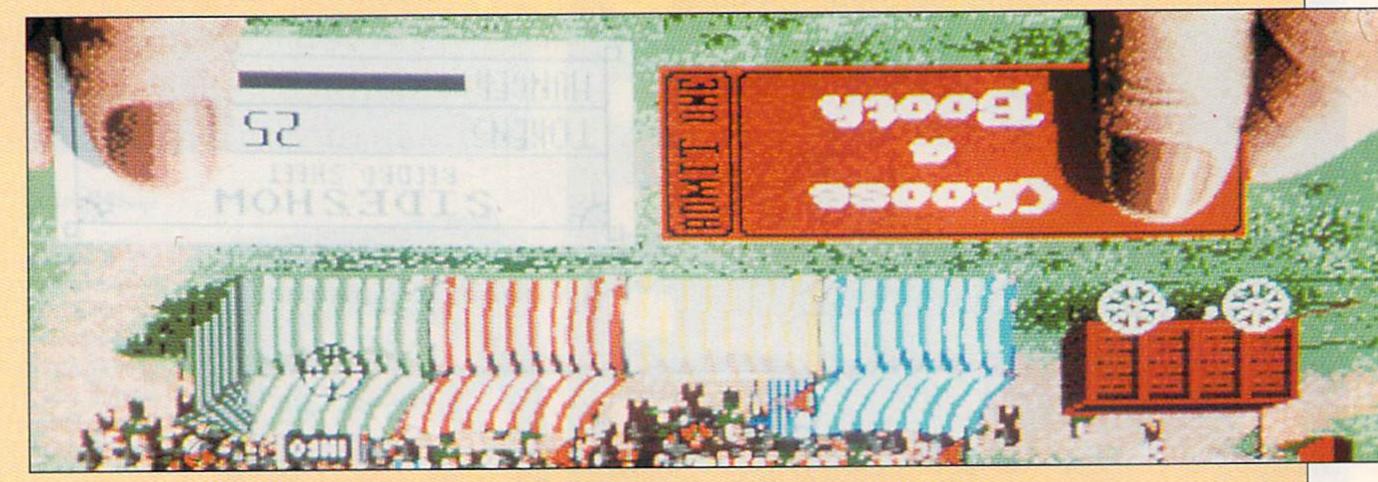
John Kennedv

John Kennedy





Oh what a circus, oh what a show



instri deadly intent Looking around



NICE DITOWS!

ally develops the strategy of the Actionware's earlier titles but actubetter value than some of ferent way. This not only makes it each game is challenging in a dif-

game, bag of popcorn included with the the circus, as does the authentic help to build up the atmosphere of and the odd animated sequence consistently brilliant. Sound effects pathetic in others. Good but not places, yet fairly mediocre to The graphics are excellent in

tion mouse is recommended. a look nevertheless. A high resoluyou have a lightgun, but still worth only tremendously wonderful if Admittedly Sideshow is really

Green

Overall - 78% Value Gameplay Graphics punos Actionware 26.423 Worksbir

> may only win a booth three times case of the Lawson's. Therefore you going to be suffering from a severe the poor bloke running the booth is become wealthy rather quickly, but

haven't tried playing the games yet Simple, eh? Well, firstly you home with pockets full of tokens. three times at every game and go So all you have to do in ol before it closes down.

After a period you will begin to small problem of your stomach. and secondly there is the not too

keep you going for the show. dogs and a bag of popcorn will ner of the showground. A few hot the concession stall in the far corically quell the pangs by visiting the game. However you can periodto go home immediately, ending severe snack attack you will have get quite ravenous. In the event of a

what's required. si gnitsald tnegilletni - erehwon that. Mindless blasting will get you little more intelligence to it than shooting ducks, though there is a Shooting balloons, shooting balls, ture some sort of shooting. All the games, predictably, fea-

accuracy. Whatever the speciality, others simply require speed or a pattern in the objects you shoot, Some games require you to find

> .qu beqqoq lightgun to shoot creatures that course, Creature, where you used a popped up. Not forgetting, of

> some new concepts. plot line and actually introduced its well used but always reliable morì yllistot betsiveb even ot smees up? No. This is where Actionware from Sideshow? Clowns popping So what can we look forward to

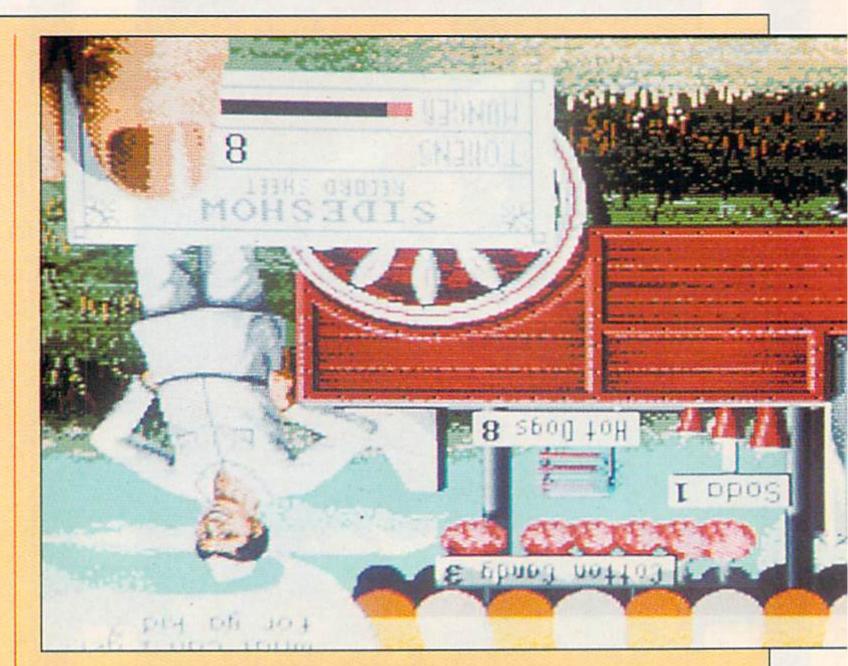
case you have "won" the booth. play there in the first place. In this more tokens than it cost you to well at a booth you may win back number of tokens. If you do really different game and costs a different sideshows. Each booth contains a tain number of tokens for use at the gone to the circus and bought a cer-And this is the plot. You have

this, not only are you going to Obviously if you keep doing

> clowns and the elephants. before popping out to watch the like - a spot of jelly and ice-cream out for children's parties and the They used to be the standard trip most of the great circuses are dead. L L still touring the country, PART from a few die-hards

> Sideshow from Actionware. what you've been missing with extinct. Now you can catch up on sideshow attractions was all but the main tent being surrounded by circuses and the old tradition of years ago, there were very few big Even in my youth, all those

lightgun to shoot Germans that there was POW, where you used a gangsters that popped up. Then where you used a lightgun to shoot with a lightgun. There was Capone, producing software that works Actionware is well known for



AMIGA COMPUTING May 1990 53

with my sparkler? Anyone want to play

The hundred years war

icum of blast power to get rid of.

to get too excited over. The tanks

rating.

together will end up cooperating this type where two people playing esting. It is one of the few games of

of instroqmi si ii, tedmemer effective against buildings too persistent attackers. They are fairly ing tanks and the odd crowd of dispatching the frequently-appearaccident. Grenades are useful for ence this is nearly always done by to throw a grenade. In my experi-Pull the joystick down quickly

The enemy will pop up, fairly

Hitting some targets will release can see what is going on. destroy these quite rapidly so you

weaponry or extra grenades, but bonuses in the form of advanced

Once you have killed a certain

lliw nov seibbed to redmun you'll have to be quick.

progress to the next scene. There

to aim excellently, but you must ing. It is not enough just to be able This makes things more interest-

EHENA

Moving the joystick left and for the enemy to hide behind.

while being on the left-hand of the your man - you can't aim far right tion. Unfortunately it also moves ing sight in the respective direcright, up and down moves the aim-

structure like buildings and walls

behind. Beyond this are one or two

player option - to cower and cringe

ond joystick and went for the two-

or players if you plugged in a sec-

- reground for the player -

pieces of scenery hanging around least. There are usually one or two

from a strategic point of view at

tanks, frogmen, motorbikes, heli--nis s ylno diw yllsitini bəmiA

Die,,; there a better motto than "Fight or just cause for fighting, where is tleground. Where is there a more Salvador - one world and it's a batrun invasions, death squad sphere: Nicaragua, Honduras, re-

Could be any frontier, any hemi-

made of who you are fighting.

lines with little or no equipment.

been cut off deep behind enemy

be quite as hard as this. You have

of gniog saw ii biss ybodon bnsd

The battle now is for survival.

lnterestingly, no mention is

face to face with enemy marines, supply of ammo you will come gle-shot repeater and an unlimited

0Verall – 68% are four scenes to each level and



Value

Gameplay

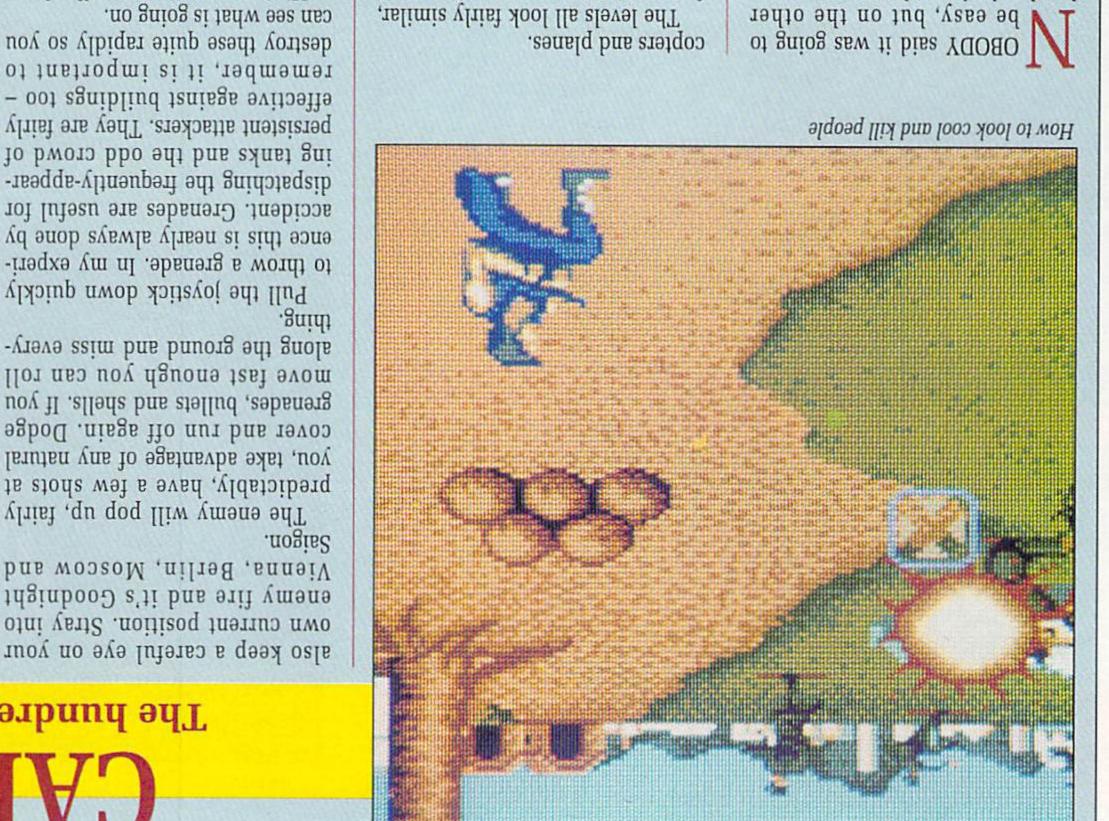
Graphics

Ocean

£54.95

Cabal

punos



Green rather than competing.

The two-player option is interwant them doing my interior decocompletely strange but I wouldn't seem to be a little strange, nothing bit machine. The colours chosen look too much out of place on an 8are quite good but the rest wouldn't

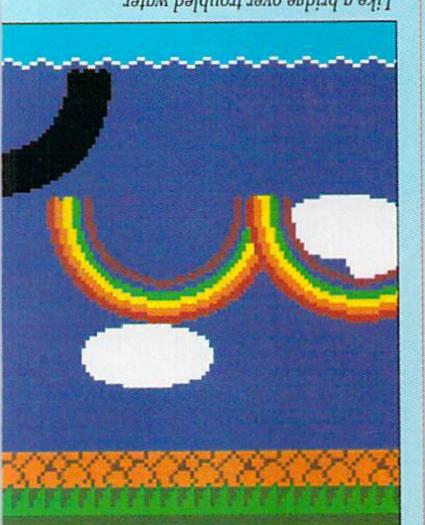
Animation si stant seiw-noiteminA dexterity and more than a modteunsm to sergeb dgid a seriuper

superhuman bad thing that

also keep a careful eye on your

■ GAMES

causes it to break - it's true, I've objects. Jumping on a rainbow incapacitate the foe or to collect our heroes. They can be used to before them, be walked upon by



Like a bridge over troubled water

want to get from one end of the ger or anything like that. They just save people from unspeakable dan-This time they are not out to

chain, each dominated by some There are seven islands in the other. Selfish, or what? picturesque archipelagos to the

Unfortunately B&B no longer of weapon might come in handy. there you go. Looks like some form either), robots and dragons. So don't know what the difference is tanks, bats, balls, spheres (no, I adversaries include spiders, crows, nitely not on friendly terms. Such strange sub-species which are defi-

will would have led to better career produce diffraction phenomena at would have thought the ability to make do with creating rainbows. I weight. Nowadays they have to capable of supporting their own have the ability to spit bubbles

Rainbows can, like the bubbles opportunities than this...?

lunch hours just to bounce on a everywhere queued up in their blekind were a real hit. Girlies

more human, in Rainbow Islands. have returned, looking slightly doses of cuteness. Bub and Bob is to be further subjected to severe It isn't over yet. The human race few balloons.

spared them. ting lizards, I had thankfully been heroes than a pair of bubble-spitbeen a more ridiculous set of Bubble Bobble. If ever there had across the cult cutesy classic, Larcade far away, I came LONG time ago, in an

But the two saviours of bub-

Stony-faced adventuring



banditry. the casinos, as well as outright ni gnildmeg 10 sleitetem wer gni or wagons, searching for and minmight take up. Trading with ships more honourable professions you

the same. that, but the basic components are lls bas boireq taerent period and all me of Elite. I mean, obviously it is Actually, it all begins to remind

attound on the bottom of the sort of indistinct things that hang seem to represent anything but the These are not the sort of icons that All the options are icon driven.

> SUSABU YOUR BRUY: SROUN HOUNTAIN CITY'S ARMY: 0.1 PROUNT NOUNTRED CITY SEMP CHISS VARUABL

Hardly Nato HQ, but this is where you control your army

grand to get started. well be prepared to lend you a few your kingdom. The local banks that you may or may not win back

back to the bank and rob it. 50 men, outfit them and then go to go straight to the park, sign up when the bank gave me a loan was flow. In fact, the first thing I did number of careers to increase cash

There are a number of slightly

From there you can take up a

your employ. and highly trained soldiers in are being followed by a few thouwant to wander about unless you kingdom is no longer a place you anywhere in the kingdom and the

you several million on the strength TSB would be prepared to lend reckon, but I don't think even the money. I don't know what you to innome egiel a been nov ymis Now in order to get a decent

> His father's bought it, so has the Prince Cirion. nothing to the problems facing are screwed up. But all this is as can't get to work because the trains there's no milk for your shreddies, wake up in the morning and - You know the sort of thing -VERYBODY has an off day.

> are looking quite bad. other lower forms of life. Things demons, robbers, orcs, editors and the rest has been overrun with What's left of it, that is, because best magician in the kingdom.

> as temperamental. package, but she seems to be just the Prime-based 3D modelling I don't think she is any relation to invading chaotic forces is Medusa. Commander in Chief of the

the sword. huge" army, before putting her to the blurb describes as a "relatively Medusa no less, and gather what is to find five rings, the Rings of The only hope of defeating her

come across. The rings could be ping into the first jewellers you This is not quite so easy as pop-

It never rains, but it floods

seen it! - destroying or collecting anything below.

Of course, all this rainbow business isn't without its drawbacks. After a while the island will begin to sink. Whether this is to do with

Bub and Bob should stop using aerosols if they want to survive 'cos

the greenhouse effect is not adequately explained.

once the tide starts coming in it looks like North Wales in March.

And so our rainbow warriors progress, climbing to the top of the screen in each level, collecting bonus fruit on the way. Some of the objects to be found are a lot more useful than fruit. A shoe will give extra speed on the ground, while the potions will enable faster and longer rainbows.

Each island also contains a secret room, a bit like Bubble Bobble. The way to access these rooms remains secret but if you follow the same plan as in the prequel you won't go too far wrong.

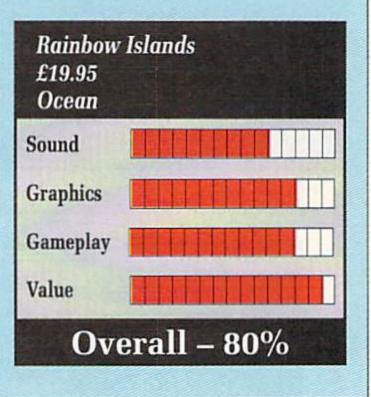
The end of each island, if you can bring yourself to kill all those horrible cute baddies, is guarded, reasonably enough I suppose, by a guardian.

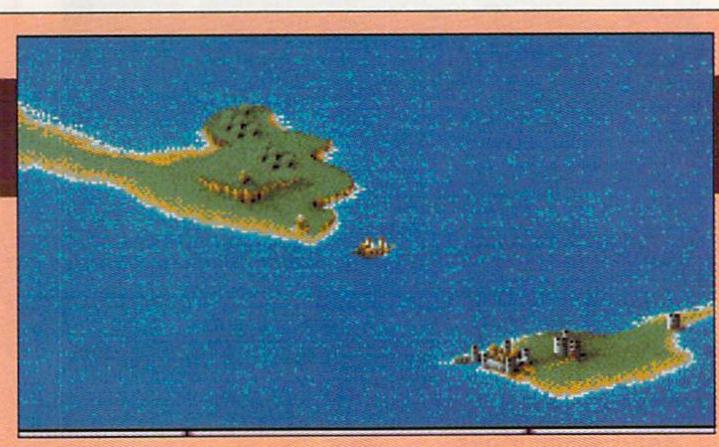
This is usually a sort of jumbo mutant-sized version of one of the creatures you have already encountered. They don't look quite so cute

when they take up most of the screen. The tune is a bit annoying, not as good as the Bubble Bobble soundtrack. Incidental effects don't vary much from the standard formula, but they're good enough.

If you like action but draw the line at the sight of intestines, then you won't find much better than Rainbow Islands. There's lots of it. too. Terribly uncool, though.

Green





Sitting by the dock of the bay

screen, and have you looking them up in the manual every time you want to use them.

The rest of the graphics are impressive. Very impressive even. I particularly like the scenes when you are laying seige to a castle and you get a panoramic view of your men running up and down, as well as cavalry charges and airstrikes from dragons.

There is a fair amount of strategy to the battles, it may not be simply a case of outnumbering the enemy.

Battles at sea are a bit of a let down though - it all boils down to how fast you can load a cannon.

Individual army units are made up of humans, trolls, giants and other mythical life-forms. Each will detract or contribute to the unit's overall strength, intelligence and other fighting characteristics. The right troops have to be found for the right job.

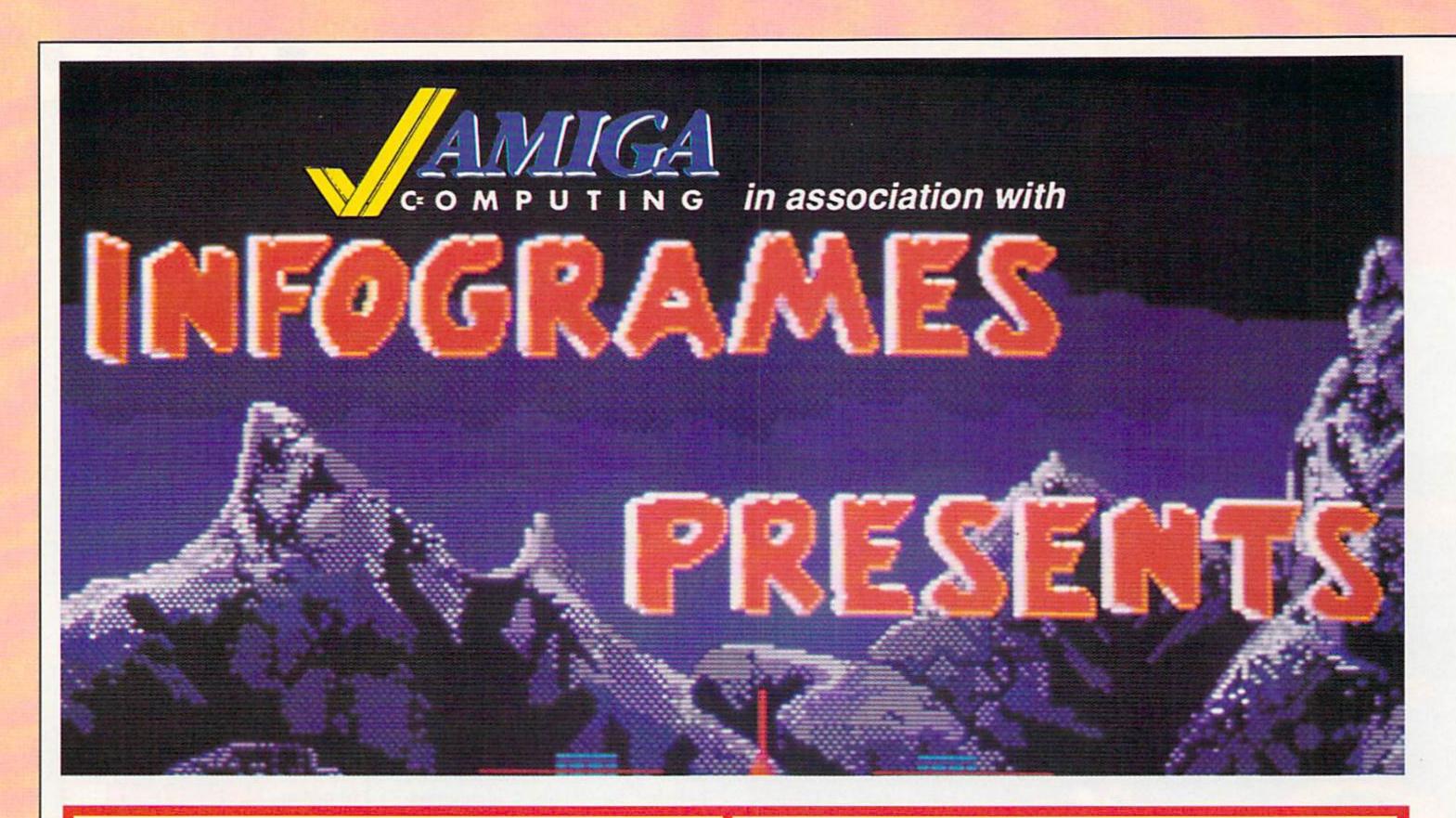
The music is OK but not exactly atmospheric and can get to be a bit painful after a while.

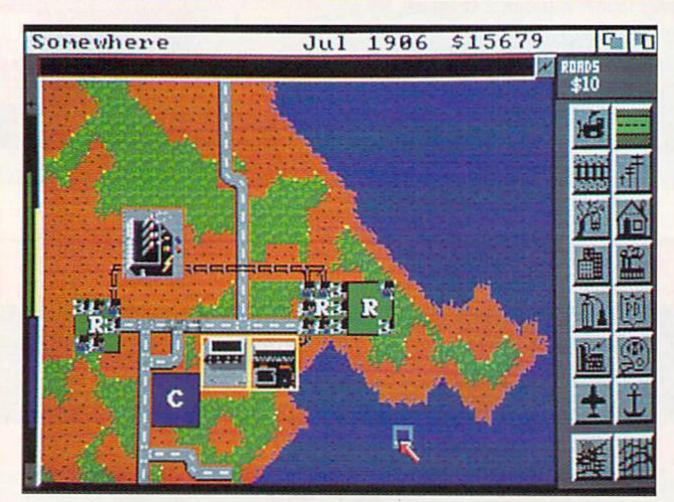
In the value stakes there is an awful lot to it, remaining interesting and playable right up to the end.

A worthy attempt to combine true strategy with adventure though perhaps the need for financial acumen and military skill deny the pure adventurer much scope for success.

Lucinda Orr



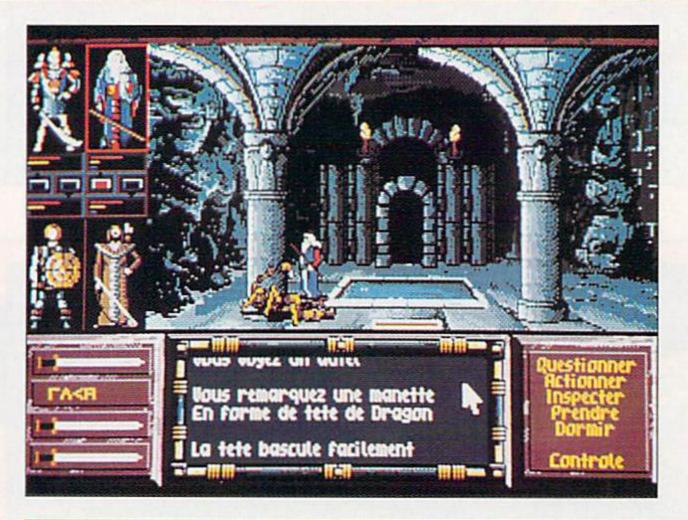




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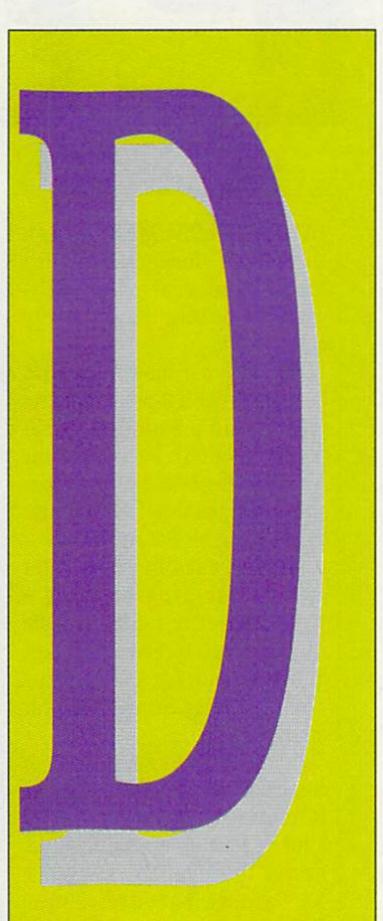
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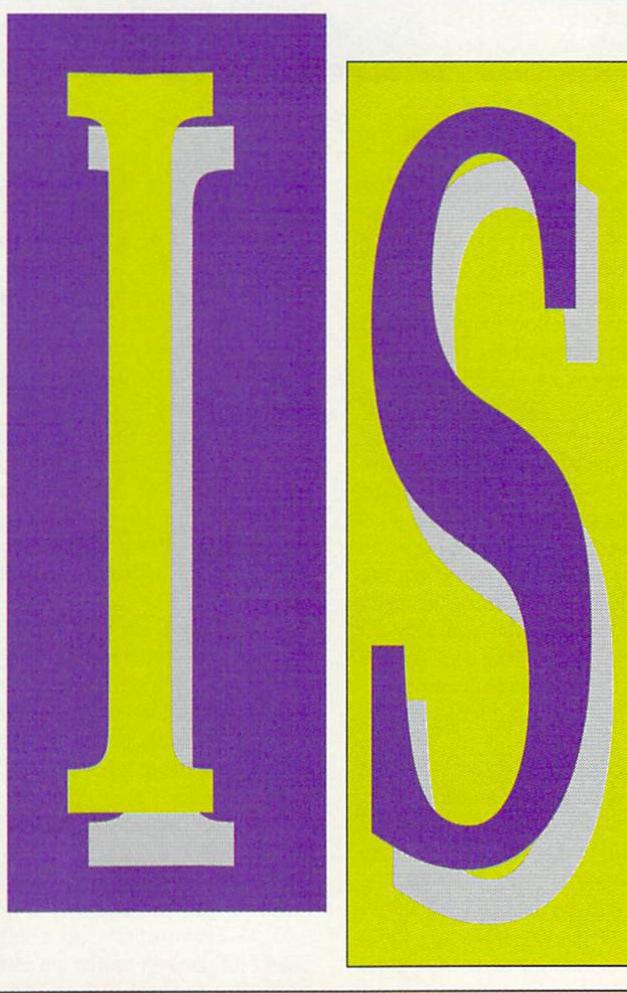


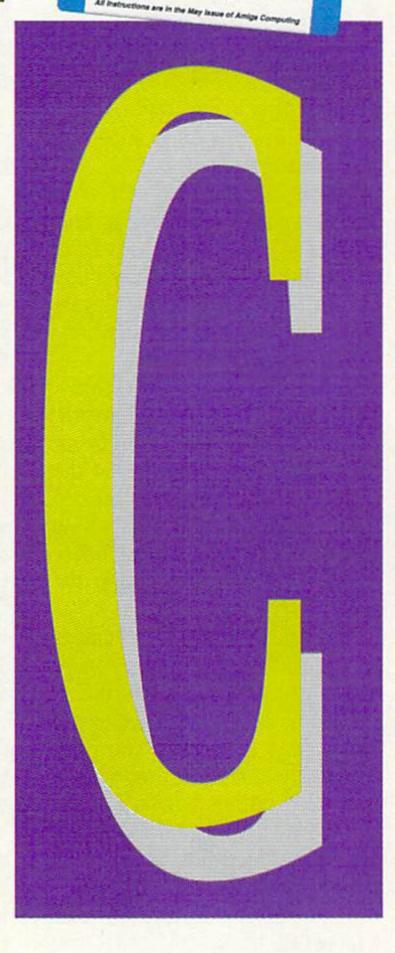
Jeff Walker presents...

THE









MusicBox 1.4

USICBOX is a simple music player program using files Song0 to Song9 for stereo audio output. To run it, double click on its icon and a small window will appear on the Workbench.

The middle-left portion of the window is a mode gadget. Use this gadget to switch between Sequence, Random and Repeat modes. The middle-right portion is a selection gadget. Use this to select the next song, or replay the current song if in Repeat mode.

While the window is active the function keys F1 to F10 can be used to select songs Song0 to Song9 – the F1 key selects Song0, the F10 key Song9. The S key will Select the next song, the D key will toggle the play mode and Escape will terminate the program.

There are two more songs in the MusicBox drawer this month – the first was given to you on the January 1990 disc. Both this month's songs are music files produced

using a pre-release version of SoundFX by Christian Haller and Christian A. Weber of Linel, Switzerland.

The format of these files has been altered for use with MusicBox and is not compatible with any other software, including SoundFX.

As of version 1.4, files produced with the SoundFX Save-Final option may be used without modification; that is, music files may be executable.

Additionally, music files are no longer restricted to the names SongO to SongO. Use of the MusicBox icon Info Tool Types permits alternate music filename specification. A Tool Type entry of SongO=FutureTrip would indicate that the file name FutureTrip should be used whenever SongO is selected.

Graphic display of the current music file name has been added to the control window. If no alternate



If Song9 sounds a bit muffled to you, double click the Filter icon after it's started playing

name has been provided, the file name will be the same as the song selected. In the example above, the name FutureTrip would be used and displayed when the song selection was Song0.

Because the filename references are stored in the MusicBox icon, CLI execution now requires the current directory to be that which contains the MusicBox.info file. Also, the file icon.library must be available in the Libs: directory.

Workbench execution has no additional requirements. Have fun. More MusicBox songs next month.

THIS program is freeware but remains © Copyright 1989 Peter L. Dunlap. MusicBox is distributed courtesy of CMOS BBS (Tel 0101-303-322-4078).

The Brain

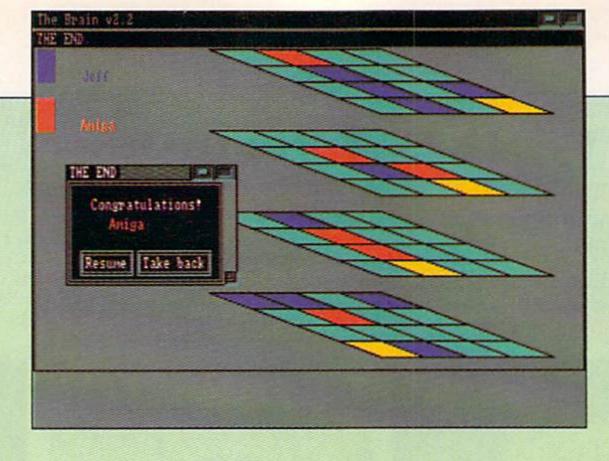
HATEVER you are prepared for, you'll get your brain tied in knots. Hence the name of this game. Having said that, The Brain is fairly simple to play; too simple maybe.

Imagine noughts and crosses in 3D, on a matrix composed of four planes of four rows and four columns. The goal is to draw a line of four cells, each of two players playing alternatively, just like ordinary noughts and crosses.

Every line in 3D is possible – horizontally, vertically, in depth, diagonally... There are 13 different lines and if you play against the computer you will soon learn to picture them easily. Play a few games and try every possibility because it's quite difficult at the start to "see" the lines.

You can play with two humans (if you can find any), or any combination of humans and four different computers. The game supports full mouse and menu controls, with graphics and digitised sounds—some originated from Perfect Sound and the game Crystal Hammer. The Brain multi-tasks, but play with task priorities if you use other programs because it uses a lot of CPU time.

To run the program double click on its icon. After selecting the players from the Players menu,



Shucks, beaten again. You need three eyes for this game!

choose Start New Game from the Project menu to begin.

A requester will appear with a default name for each human player. If you don't want to change it, just pass by clicking the left mouse button in the requester. If you want another name, click in the string gadget, type a name – 10 characters max – and hit Return.

Click on a cell to choose it. If you change your mind, don't release the left mouse button, move the pointer away from the board and then release the pressure. If it's too late, use Take Back from the Options menu. This will work even if you lost the next turn – the menu will be trapped but a requester will appear; you can "take back" all the way to the first move if you want.

You can change the players any time during game. If you set it to two computer players, the game will switch to demo mode.

If you decide to alter the board with the matrix editor, by adding or emptying cells, the Options menu will be disabled when you return to the game because those routines only work with normal gameplay.

Patrick Debaumarché, the pro-

grammer, says that the computer's strategy was the toughest part of the programming. He managed to alter computer thinking in two ways, making four different strategies.

Amiga Bulldozer is kind of, um, bullish. It builds lines quickly without thinking in advance, but can defend itself violently if you always try to line two cells up.

Amiga Smart is the best human adversary. Although it seems to play randomly at first, don't be fooled, it thinks two moves ahead. This stinker builds a very efficient strategy which will really puzzle you.

The 1 and 2 after Smart and Bulldozer give you a further choice — with 1 the computer plays randomly in tied situations and with 2 it plays smarter, trying to take advantage of the best positions still free.

In Suggest Move, the algorithm is set to Bulldozer 1.

Don't be upset if you're always beaten in your early games. That's normal. Some of Patrick's beta testers still haven't beaten the computer once, even in Bulldozer mode! PATRICK DEBAUMARCHÉ is a 20-year-old student completing his second year of a DEUG degree at the scientific university of Bordeaux.

He owns a 1 meg A500 with external drive, a 9-pin dot matrix printer and a sound digitizer (Perfect Sound). He bought his Amiga in the USA two years ago and converted it to PAL last year by changing his Fat Agnus.

Patrick uses his computer mainly for programming - switching only recently from Amiga Basic to assembly language - and for composing music, using SoundTracker mostly.

If you have any suggestions or comments – for instance Patrick is thinking of a 5x5x5 matrix for a future version – send them to: Patrick Debaumarché, 75 avenue du Parc de Lescure, 33000 Bordeaux, France.

Three Pendula - show this to your

doctor and get a few weeks off work

Chaos E'RE into the second month of Alastair Scott's series, and in the Chaos drawer you'll find the two program's from this month's article, plus the three from last month. If you've typed the listings in you'll have noticed that due to the complicated chaotic formulae they The N-Body Problem. tend to crawl along at a fairly sober It may look like pace. Never fear, HiSoft Basic scribble, but it took scientists centuries to Complier is here! It's worth typing work out how to do it the listings into Amiga Basic just to see how much faster the compiled versions run. See last month's article and this month's on page XX for instruc-

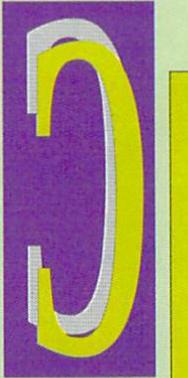
month.

tions on how to use them.

More compiled chaos next



9401294







ing a text file, you can see that save about 60 per cent by crunchand when you realise that you can PPMore crunched with PowerPacker. normal Ascii text files or text files

While you're creating the backup, the current path and filename are displayed at the bottom of the KwikBackUp-window. Disting of KwikBackUp, DOC cover disc. PPMore is used to read gave you on the October 1989 command and data cruncher we other utilities, PowerPacker, the plement one of Nico François'

If any error occures, the same requester that occured while creating the backup will be displayed. Retry and Cancel have the same meaning described above. Ignore will cancel the currently loaded file and searches for the next file on the source disk. When there some further files found, they will be loaded. While you're restoring a backup, all files are written back onto your harddisk. The harddisk will be recreated exactly the way it has been before. When you insert the disks, their order and whether they belong to the same backup will be checked. If you're backup disks are no nore in order and you have forgotten to write the disk's numbers onto the disk, you can just insert each disk after the other. The disks' numbers will be displayed then.

PPMore supports all the CLI escape sequences to display different text styles and colours TE BURNES ATER STILL ALLER | USBUTTER | BUTT ABOUT AND AND BEEL AND BEEL AND

KwikBackUp is NoI in the Public-Donain, it is ShareWare, Who uses KwikBackUp for private purposes, is suggested to sand me a donation of exchange it). Any commercial use of KwikBackUp needs a written exchange it), Any commercial use of KwikBackUp needs a written permission by the author (that's me).

Opentook

PMORE was written to com-

tem/ppmore. Last of all, select the directory, you should enter :sysexample, PPMore is in the System your disc for this to work. If, for should be in the root directory of Tool and enter :ppmore. PPMore string gadget where it says Default several gadgets in it, click in the

François, Corbielaan 13, 3060

author know. Write to: Nico

you find any bugs, please let the

remarks about this program, or if

International Money Order or in Belgian Francs (BF) by

if you live elsewhere. Send money

£10 if you live in Europe, \$20 US

get it by writing to Nico, adding

public domain library or you can

try to find it in your favourite

main feature of PPMore. You can

you are of course missing the

friends as long as you don't ask

that you can give copies to your

PPMORE is freeware. This means

If you haven't got PowerPacker

If you have suggestions or

Bertem, Belgium.

EuroCheque.

any money for it.

course. text.doc file in the directory, of displayed. As long as there is no double click it text.doc.pp will be text.doc as the name, but if you Workbench will show an icon with name the file text.doc.pp. Now the can make an icon for text.doc but the workbench environment - you not found. This is very useful in to the filename when the file was qq. xiffus odf the lliw oroMqq Save gadget.

not be hard to understand. the function of the gadgets should press Help when reading a text file, mary of the keyboard commands keyboard or gadgets. To get a sum-PPMore can be controlled by

Printing

can't quit until the hardcopy is finwhen PPMore is printing, but you YOU can continue to read the text

(.11-8 Manual, Using Preferences, chapter printer. (See the A500 User's tem-configuration saved for your You should also have a correct sysfor your printer in Devs:printers/. tory and the correct printer driver printer.device in the Devs: direcyou of been lliw nov For PPMore to be able to print

> to keep the keyboard commands replacement for More, so Nico tried

The program was written as a

The program is about 6k long,

PPMore could save a lot of space

on your discs.

ences, you can replace More with If you can live with these differfile, loading the rest when needed. ory; More only loads part of the loads the complete file into mem-PPMore uses gadgets and it always ences between PPMore and More ones. There are two main differwen gnibbs as llew as ,emes edt

plate. You use PPMore like this: ments you will get a usage tem-If you type ppmore without arguferent ways. First of all via the CLI. PPMore can be used in three dif-

PPMore anywhere you want.

onsne> filename>

There are three different ways of will be prompted for the password. you. If the file was encrypted you PPMore will first de-crunch it for using PowerPacker 1.1 or higher, play it. If the file was crunched Ascii file called filename and dis-The program will then load the

you will be presented with. the filename in the string gadget click the PPMore icon and enter the text file icon, or you can double PPMore icon and then double click to PPMore, you can single click the crunched or de-crunched text file you can set the default tool of the using PPMore via the workbench -

tory). You will get a window with info.library is in the Libs: direcmenu (this only works if selecting Info from the Workbench clicking the icon of the text file and You set the default tool by single

Program history

2.3a or higher). encrypted files (PowerPacker ronment. PPMore now also loads very useful in Workbench envitilename when file not found, of babbs xiffus qq. :1.1 nois19V Version 1.0: First release.

name when double clicked from PPMore now prompts for a fileimproved, now handles repeat. times ahead. Gadget input also pressing without typing it 20 ignored so you can keep on improved. Auto-repeat of keys is PPMore. Keyboard input slightly faster and smaller tines in assembler, results in a Version 1.2: Rewritten some rou-

Workbench.

your startup-sequence. The proclick on its icon or install it in

already opened when the program Any windows which are the new gadgets. which are opened later will have thing else (windows or screens) first screen's gadgets, and anygram will immediately modify the

reopening them. updated by closing and then ed yem segemi tegbeg blo diw uses those anyway?) Windows pixels will not be affected. (Who which use a lo-res width of 320 gadgets attached. Also any screens is executed will still have the old

what you think. Enjoy, and let Robert know

Schader, 3631 Colby S.W., reports, write to: Robert have any comments or bug ware, use it as you please. If you consider this program as freeby Robert A. Schader. You may OPENLOOK is copyright © 1989

I9T) ASU , e03e4 IM , gnimoyW

0101-616-531-6083).

which is documented but not IntuitionBase structure in a way OpenLook modifies the help Robert with this, do write proved too difficult. If anyone can - but after numerous attempts that as well - scroll gadgets and arrows the Workbench's window gadgets Robert had high hopes of altering look/motif on Unix machines. somewhat styled from the openone bitplane screen. They were system's default colours even on a

The gadgets look good with the

thinks that his effort is the best yet.

Schader, the author of OpenLook,

cover disc. Well, Robert A.

instance, on the December 1989

was one called NewLook, for

the system gadgets appear; there

wod ylibom that mengorq 1

LOT of you may have seen

Kickstart 1.2 or Kickstart 1.3. Workbench 1.3 running under does, however, work well with the Amiga operating system. It not work with future versions of approved by Commodore it may

To run the program, double



ble click on the Rollon icon and to solve it. To start the game, dou-You need another way of thinking time with a different approach. Il Yes, another one, but this OLL ON is a slider puzzle.

in Waterland, Holland. Woudweeren 10, 1151 AV Broek reports to: D.W. Reisig, cial basis. Comments and bug distributable on a non-commer-1990 D. W. Reisig and is freely TRACKSALVE is Copyright ©

What it does

other drives empty. moy lie eved bas evite and rour O/I ob ot safe to do I/O RAWWRITE bug and the NoDisk TD RAWREAD/TD TWO bugs have been patched -

mechanical stop, so you can't zero. Other types have a tion to prevent stepping below trical switch at the home posiunit. Some drives have an elecand off for each separate drive Noclick can be switched on

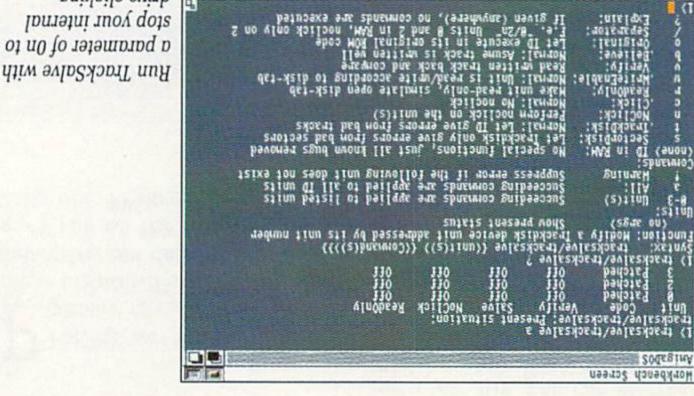
get them completely silent.

noclick on. in their drives should not switch readers with a mechanical stop the first type of drive, but those thinks it is safe to use noclick on The author of TrackSalve

'spunos ti se olqmis se ton si sidT disc is open (write protected). protection tab of the inserted Each drive can act as if the

switched over to read-only or the drive and the software is there is a write enabled disc in disc is in the drive. Therefore, if shift the protection tab while a assumes that you are not able to disc swapping, and it naturally The FileSystem keeps track of

Tracksalve



drive clicking Innietnal internal

Run TrackSalve with

bers like:

:spuem sible to give contradictory com-1 can salvage tracks. It is also posand 1, unit 2 is read- only and unit which results in noclick on units 0

tracksalve Oin2ris

tracksalve anic

.I finu enables noclick for all units except

command or unit-list reset: The separator / is a do-nothing

tracksalve Ol2/2n

unit 2. ram, but noclick is only enabled for lets the units 0, 1 and 2 execute in

seen at the top of the screen shot. and changes nothing, as can be ters displays the present situation TrackSalve without any parame-

between them the combination will clearly. It is also possible that generally operate faster and more well together. Both programs will DiskSalv and TrackSalve work very cover disc) works well on its own, Although DiskSalv (August 1989

salvage more data.

some time. Copy command, which might save from the damaged disc with the chance that this file can be rescued TrackSalve installed there is a of a file not yet on a backup. With vaging, like the latest modification disc is worth the effort of sal-Sometimes only one file on the

accepted as a Dos disc. You can do stay away and the disc will be TrackSalve these requesters will is a fair chance that with Use Diskdoctor and so forth. There requester appears with Unreadable, ately akter disc insertion a Then it is possible that immedi-

more in that case.

done at all. is an error and nothing will be given that does not exist, then this preceding listed units. If a unit is mand will be passed to all directly apply the command to. A commust specify one or more units to Вегоге уои give a command you

code of 5. gram continues but returns an error -orq edi she and the the propossible non-existing unit, a mesexclamation mark is put before a cution would be aborted, but if an that does not exist. Normally exe-It is possible to specify a unit

with repaired bugs. trackdisk being patched into ram tracksalve 023 say - results in no commands - tracksalve a or Entering just a list of units and

preceding units. For example: Commands are applied only to

tracksalve Oin

Now you can add new unit numlets units 0 and 1 stop clicking.

has become active. ters to make sure the function Enter tracksalve without parame-.01 bd lliw sulav nill be 10. is reported through a message,

detected. м неп в четібу етгог has been displayed. The requester is used delay, except when a requester is work smoothly and without all tasks. Normally this will The buffer is shared between

There is enough memory to dis-TrackSalve will loop, re-writing possible to pop up a requester, If for some reason it is not

bad track becomes good, or (3) (1) The disc is removed, (2) The changed. These conditions are: LED until the conditions have the track and blinking the drive's

play the requester.

more than one drive is connected. disk, of which one is very bad if knows, there are two bugs in track-Reisig, the author of TrackSalve lacks options. As far as D. W. which has some problems and L improve the trackdisk device, RACKSALVE was written to

optional read-only. might as well make a drive are poking around in trackdisk, we stored correctly on disc. And as we data that has just been written is And we never know whether the on it, all data on that track is lost. can't handle a track with an error drive clicking. Because trackdisk do not like the sound of an empty For instance, there are people who cover disc), but it is not enough. thing about it (December 1989 SetPatch 1.3.2 tries to do some-

printed, as shown in the screen si noitenelqxe egesu lleme a bna the whole command line is ignored the characters h, H, or ? is found, where on that command line one of from the command line. If any-TrackSalve is used exclusively

Commas, spaces and dashes are

.05 lo abortion always has a return value TrackSalve in scripts, note that asu of gainsiw noy to asout by a message via standard out. For function. This will be emphasised program without executing any defined lead to an abortion of the ignored. Characters which are not

an Exec device, not a Dos device. This is because we are modifying unit by its number, not its name. You must address a floppy drive

Commands are single characters. (. stinu lls ensem s 10 A) and A, or any combination of them. Valid numbers are 0, 1, 2, 3, a

How it works

each separate unit. or the original code in rom for execute either this patched code and extended. The unit task can tem program into ram, modified copied from the operating sys-THE trackdisk code will be

but its return value will be 10. program will continue normally, adt bas tuo brabasts no ages code, this is reported in a meswhich to execute the patched If a unit cannot be found for

cate it again every 2.5 seconds. TrackSalve will attempt to allothe moment of enabling, If this memory is not available at which use a buffer of about 26k. There are two functions

the allocation is successful. This The function is inactive until





language. derful programs in such a pig of a Amiga owners can write such won-It never ceases to amaze me how how solid and professional it feels. freak you out when you discover Amiga Basic, you see. Which will wait a while. Quite a while. It's in

coming! disc to prove me wrong. Keep them Amiga Basic, along comes another to write anything worth keeping in Every time I say it's imposssible

the screen you will see a bar with loaded, on the right-hand side of OK. Now that Roll On has

Willie. longer. Cheque's in the post, he is broke. But not for much won bnp qu-tes sid yud ot yenom floppy drive. He borrowed the 2 meg expansion and a second Amiga 2000 with a BridgeBoard, can't pronounce WIF) has an in Amsterdam. Willie (sorry, Stapper, is 32 years old and lives THE author of Rollon, WJF

There is one menu item you can Stop, if you like to cheat. the picture up some more, and new picture, Level, which mixes up the picture, Next, which loads a four buttons - Start, which mixes

you'll get an "Out of heap space" clicking the RollOn icon, otherwise sary windows before double nal drives and close all unnecesyou switch off or remove all extera memory expansion make sure yes, one last thing If you don't have All the rest is self-evident... Oh use, Quit. Guess what that does.

Adding more

message.

Amiga Basic if you really put your mind to it Roll On, proving once again what can be achieved in

puzzle used by RollOn. a lo sessis ent diw retried essent

8. A new window will appear left mouse button. made - exactly! - and click the overlaps the picture you have 7. Move the box until it exactly

space between the p and the puzzle "p 5", and so on (there's a your puzzle "p 4", your second isfied, save the picture. Name showing your cut-out. When sat-

Click a key to leave the program. information about the file length. 9. When saved there will be some number).

another disc first - the cover disc copy the Rollon drawer to RollOn drawer, (You'll have to 10. Place the new file(s) in the

> a lo-res, 32 colour screen. 1. Start a drawing program using nOlloR of selszug

PuzzleBox.brush into your draw-When necessary, 3. Fill the box with a nice picture. have the right colour set-up. 2. Load in RollOn.color. Now you

the file to ACBM format with the 4. Save your picture and convert ing program.

program. A filename will be 5. Load and start the Cut-A-Brush LoadILBM-SaveACBM program.

will see a box connected to the 6. When the picture is loaded you you converted to ACBM format. asked for. Use the name of the file

WII O TUIN

for the OR operation. in only A+B. The plus sign stands equation is D=A OR B, you'd type minterm for. For example, if the cal equation you want to find the string gadget and type in the logiborder around it. Click inside the There is a string gadget with a

and away you go.

statements:

gram is loading.

is packed to capacity.)

14. Save the amended program,

already three puzzles on the disc.

zles + 1. Remember, there are

ber, namely the number of puz-

13. Change the 4 into a new num-

getal=4 THEN getal=1

gniwollot and thin anil s sas lliw

in the middle of the screen you

named label, sorry). Somewhere

12. List label "wacht1" (a Dutch-

Basic menu bar while the pro-

choose Stop from the Amiga

11. Double click on RollOn and

getal=getal+1:IF

Iluf adT .B.A ni aqyt bluow uoy If you wanted to do D=A AND B

> use MinTerm, the utility. have to do is follow the rules and ent minterm each attempt. All you

gets. the usual Intuition window gadcan send it to back or to front using window wherever you like and you of the screen. You can move this opened in the top left-hand corner Workbench, a small window is or double clicking it from After calling MinTerm from CLI

work for you. ity which does all the conversion treat yourself with this small utiltals as the minterm. Now you can more commonly known to us mortions for the LF code of BLTCONO, ing to work out lots of logic equa--ved - doi gniterteut bns enoibet assembly language can be a ROGRAMMING the blitter in

tion five times and getting a differ-No more trying the same equa-

> -tub ylbnəitlnu yrəv si sidT read/write, a DiskChange is sent

> .gninniqs fon si vice-versa, only when the drive from read/write to read-only, or Nevertheless, switch a drive the motor is switched off. ing a write, so it is delayed until

> If trackdisk gives up on a

trackdisk's buffers. data is recovered and stored in and analysed. All unsuspicious action. The track is read again function - if enabled - comes to track, the the TrackSalvage

results in a disc error. So faulty write to this track is denied and calling task, but an attempt to ered, no error is passed to the If the requested data is recov-

special buffer which is compared rectly. It reads the track into a whether the data was saved corjust-written track to check TrackSalve can read back a tracks are read-only.

about this. You can choose is the user who must decide fied about an error. Therefore it know which task should be notitasking, it is not possible to Since the Amiga is multiwith the original write buffer.

known that something is wrong. good result. At least the fact is s of basi fon ob safirw-st fnaup bad track. It may be that subseas if we never knew about the buffer back to disc and ignores it Rewrite writes the original between rewrite and ignore.

G

Minterm HEX value MinTerm vi @ Aniga Computing was Inim молкреиси зслеви

Aintern BIN value

Logical Expression.

8+A

, assu and gnitish : SUTATS

MinTerm, making life easier for the blitter programmer

Disc

SUBSCRIBERS

with our compliments. Please You will be sent a replacement

TAAT

of \$11 instead. Most probably \$05. The manual shows a value to mretnim s sevig (D*A* si tsht .niege O bar A evode red) OA=U Secondly, The expression

manual intended. *(AC), which is not what the As it is, some people would try MinTerm you would enter *A*C. ried out for each value. In the NOT operation should be carthey should be separated, that is

. B a rol betrinted for a B.

manual Mistooks in the

should bear in mind. there are couple of things you tion, Page 171, Blitter Hardware) Reference Manual (revised edifrom the Amiga Hardware IF YOU are going to try examples

əlil Isən ni - O ot A mon nwenb si rad elgnis eno ylno - beniol si JA as dous snoitsupe to qot Firstly, although the bar on

card will be moved. the left mouse button again and the selected card is to be moved, click card or space on to which the

selecting an item from the Project ing the same card again or by may be de-selected by either selectrules are allowed. A selected card only moves which conform to the Unless cheat mode is selected,

Use Show Moves from the or the Undo menu.

is highlighted blue. Spaces are card which it can be moved on to moved is highlighted black and the time. The card which may be structed and displayed one at a possible legal moves will be con-Search menu for a hint. A list of

list is reached the message No the first) move. If the start of the until the earliest saved (normally mistake. Moves can be undone Use Undo Move if you make a highlighted in white.

If cheat mode is on the menu moves to undo appears.

GmbH.

Tool vi.0 by Maxon Computer

using Requester Construction

and requesters were designed

1.3 using Lattice C v5.04, menus

was developed under Workbench

ond floppy drive. The program

Brother M1009 printer and a sec-

sion, Amigos 40 meg hard drive,

-nodx9 viom9m 102A diw 002A

in Obernai, France, owns an

housewife, Jennifer A. Hackett.

bearing tonning turned

BCASTLE was written by ex-pro-

Good luck... and have patience!

either quitting or playing another

to noitqo off gaiving beyelqsib si

umentation!) so Help won't work.

this very moment reading the doc-

are on the cover disc (you are at

mentation. Neither of these files

PD utility Less to display the docu-

cheat mode, only legal moves are

to gnittes eft serongi (evode ees)

rules. The Show Moves facility

checked for conformity to the

option is ticked and moves are not

The Help menu item uses the

If the game is won, a requester

Jennifer, who is currently living

CASTLE plays three differ-

clicking on the close gadget. chosen game. Quit at any time by accordance with the rules of the cards will be shuffled and dealt in for the game you want to play. The choice of game. Click on the gadget containing a requester for the opened on the workbench screen click its icon and a window will be game Beleagured Castle. Double ent variants of the patience

not to use the blitter.

*B+*C'

want invert.

program.

ОК, пом уоц have по excuse

-sib si minterm is dis-

gadget, click on the Start gadget

typed the equation into the string

equation you like. Once you have

and (NOT B)+(NOT C) becomes

AB+(NOT A)C Decomes AB+AC

A)+(NOT B)) becomes *(A+B),

put an asterisk before each part you

of si ob of been noy lls - noitulos

Dingsoyr have opted for a neat

Christian Fiott and Torgeir

machine), MinTerm programmers

keyboard (nor on our typesetting

key for a (NOT C) on the Amiga

where (NOT C) is normally repre-

such equations as D=A+(NOT C), ation. But hey, how do we type in

complex ones using the NOT oper-

tions you might want to try more

rect and both are recognised by the

instead of A.B since both are corten D=AB, so you can type just AB same equation is sometimes writ-

the AND operation. However the

stop between A and B stands for

After doing some simple equa-

sented by a C with a bar above it.

Keeping in mind that there's no

So, (NOT C) becomes *C, ((NOT

Simple, eh? Now you can do any

played in hex and binary form.

ni səgsessəm gnintew bas əfidw sages. Error messages come up in lower part is used to display mescontains the card layout and the Wobniw and to fraq raqqu adT

selected card. change into a representation of the mouse button. The pointer will be moved and clicking the left the mouse pointer over the card to piles in the centre - by positioning rows and on to bases - the four Cards can be moved between

Position the pointer over the

problems?

return it to: damaged in the post, please Computing and your disc has got If you subscribe to Amiga

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allow 28 days for delivery.

RULES

Beleagured Castle

of the bases. the left and four rows to the right overlapping cards, four rows to right, to form eight rows of six columns, alternating left and shuffled and dealt in face-up remainder of the pack is then known as the "bases". The tral face-up column; these are THE four aces are dealt in a cen-

no gniblind 101 sldslisvs si wo1 The outermost card of each

the game is won. When the entire pack is built, ascending order up to the king. the base of the same suit, in

Diamonds. be moved on to the Jack of example, the Ten of Hearts may only in descending order. For of another row of any suit, but moved on to the outermost car% most card of each row) may be An available card (the outer-

build on to the bases. those cards which are needed to between rows in order to get at ble to move cards back and forth into the space. Hence it is possiavailable card may be moved If a row becomes empty, any

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ware if that is what you wish. public domain as either freeware or sharepared to launch your program into the other means. However we are quite prethe public domain or have been spread by to pay for programs which are already in on an all rights basis. We are not prepared

be nice, but isn't essential. your kit. A photograph of yourself would number and a few details about you and mentation, your name, address, phone Include a file on the disc with full docutocopy of it, with your submission. Please enclose this coupon, or a pho-

stamped envelope. your disc back, enclose a self-addressed, address and phone number. If you want label the program name, your name, Don't forget to duplicate on the disc

.....9te.

you up to £1,000. If we like what we see, it could earn zine, send it along and we'll have a look. with everybody else who reads the magahave written is good enough to share cover disc. If you think something you tributions for the Amiga Computing WE are always looking for original con-

standard Workbench colours. make it too large. And please use the free to design an original icon. But don't Workbench disc. If it is clickable, feel your submission needs from the Please let us know which files, if any,

have to be exceptionally good to make it does not run on a 512k machine would Bear in mind that a program which

Amiga Computing will buy your work

this form if necessary: one file, describe what each file is for. Attach an extra sheet of paper to a brief description of your submission below. If it consists of more than the source code, but do not count this in the size of the submission. Write getting on to the disc. If it is a compiled or assembled program include all mentation. But the shorter your submission, the better chance it stands of We will accept submissions up to 500k in total length, including docu-Submission size.....bytes in total əmsn noissimdu? Evening phonepm Daytime phone......After NameAge....... on to the disc.

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Citadel

placed in the centre column as a Ace appear s during the deal it is Beleagured Castle. Whenever an the side columns are dealt as in THE entire pack is shuffled and

games to win. Citadel the easiest of the three will be reduced, which makes number of cards in certain rows finished, it is possible that the This means that when the deal is the Ace in ascending sequence. cards of that suit are built on to As the deal continues, other

Streets and Alleys

Beleagured Castle. them as in Citadel and remaining cards are built on to the central space as bases. The play the Aces can be placed in they become available during in the four rows on the left. As usual rows, but with seven cards pack is shuffled and dealt in the Beleaguered Castle. The entire THIS is a harder variant of

to be stored along with the pro-

data needed by these functions has

late bobs, sprites and music. The

the memory bank commands.

Amos has functions to manipu-



previews a Basic language

the alternatives? Jeff Walker

held back by the restrictions of

Fed up with Amiga Basic? Feel

down the right mouse button comprising 10 in all. By holding the Amos screen for a double row, there is only room across the top of tons. The buttons are large and Basic editor, by clicking on butis chosen, again like in the GFA in the Amos editor. Each function

cal and eye-sized chunks.

There are no pull down menus

use line numbers, is banned, in languages like Amos that don't friend of structured programming The blank line, the age-old nications.

caused the breakdown in commuof the word that appears to have finds, placing the cursor on the end sometimes removes! - any error it Good Thing, and reports - and after you press Return, which is a It parses and tokenises each line

you to type them in. grams be typed in the way it wants like the GFA Basic editor, that pro-Quirky and unAmigalike, it insists, Achilles' heel of the whole system. screen text editor. This editor is the

llut betargetni eti otni bebaol Programs in Amos are typed or

bank to another.

transfer the entire contents of one to banks is topped off by one to The host of commands relating

time a program is run. erased and are re-initialised every cally; temporary banks can be along with your program automationly be defined once and are saved temporary. Permanent banks need of memory bank, permanent and bank numbers. There are two types lengths of data, you work with of working with start addresses and or fast - and addressing it. Instead way of getting data into ram - chip Amos's banks are just an easy

the 68000 processor. indeed bank technology is alien to banks, but they aren't true banks areas of memory. Amos calls them they are user defined reserved bit computers work with, rather 8 smos tant soft bytes that some 8 These banks aren't the areas of

ory, which it calls banks. a special set of 15 sections of memgram. For this purpose Amos uses

owners turn green with envy - like that will make even GFA Basic top of this, Amos has commands that is immediately compatible. On Amos has, although not in a form Everything Amiga Basic has, may not know the Amiga.

basics of the language, even if he be sure that the author knows the wrote the STOS manual, so we can Stephen Hill, the same person who

very minute being written by The documentation is at this

package. rial, an essential part of the erence manual, as well as a tutohead - which will make a good ref-

moy ni blod of sldissoqmi bns gni The command list is bewilder-

ining the depth of Amos Basic. then you'll be pretty close to imagand "Wiggle Big Toe Right Foot", had "Wiggle Little Toe Left Foot" a single "Wiggle Toes" command cal language that instead of having imagine for a moment a hypothetimand for every occasion. If you can

It seems that Amos has a com-.idgin

opment team the odd sleepless François and the rest of the devel-

obscure keywords has given stom saft to smos tel semen many that thinking up meaningful ent functions and commands - so repertoire of more than 400 differ-Amos's power comes from its any machine code demo.

almost as greasily and quickly as in slide and scroll over the screen cession of Amos logos and sprites well, mine did anyway - as a suc-- gas iliw wai moy .troq TZ on si ming guidelines for the Amiga, this not stick to Commodore's program-Amigaphile that while Amos may even the most hardened by line - is enough to convince interpreted, like Amiga Basic, line what you are viewing is being gram - always remembering that

One look at the Amos demo pro-Amiga from scratch. And it shows. Lionet has re-written Amos on the port, STOS programmer François It is neither a conversion nor a

TS instA and rol agaugnal important - of STOS, the Basic-like

It is a re-write - and that word is The language is called Amos.

on this wonderful machine of ours. ation of commercial quality games revolutionise and simplify the crethe publisher, believes is going to Amiga which Mandarin Software, A is about to be released for the NEW programming language

shortcuts. Holding down the Ctrl Luckily there are some hot-key results in 10 more buttons each. Block Menu or Search Menu

key displays the search menu.

files menu, holding down the Alt

ing down the Shift key displays the

key displays the block menu, hold-

accessed. Clicking on buttons like another menu of 10 can be



it up when required. machine code into a bank and call

requester which will allow you to present you with a sort of file once. Pressing the Help key will four Amos programs in memory at Vou will be able to hold up to

as many Amos accessories in memram, you will also be able to hold grams, and depending on available -orq somA ruol as the four Amos proswap between programs.

between either two accessories or within Amos itself, and swap launch any one of them while still in Amos Basic. You will be able to music editors, themselves written grams like the Amos sprite, and These accessories will be proory as you like.

> you need to merge in must be Ascii of data into your program, the file want to merge subroutines or lines which is just as well because if you the Save Ascii option though, own tokenised format. You do have

gniqoləvəb nəhw əmil save lliw Screen Display in these macros commands like Screen Open and right Amiga key. Storing common while holding down the left or pressing one of the function keys 20 macros, which are accessed by Back in the editor you can set up format.

Plus, of course, you can poke and copperlists, rotate, test and set bits. low level, allowing you to modify Many commands are deliberately going to feel at home with Amos. Experienced programmers are

programs.

the command list as an extension. Amos will let you tack them on to out your Devpac and write them, want are not in the syntax, then get decide that the commands you If after learning the language you peek bytes, words and longwords.

speed in assembly, then load the in Amos, write the bit that needs Alternatively, do the twiddly bits music-handling routines. package to give you extra 3D and a couple will be provided with the Up to 26 extensions are allowed,

> owners are used to. rest of Amos, not quite what Amiga used by the files menu is, like the

> Above all it's quick, it's solid, and and is totally mouse operated. devices - logical and assigned -But it's friendly, knows about

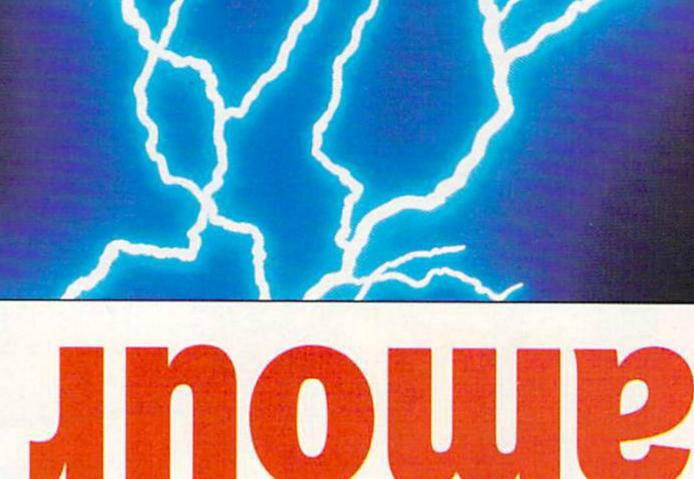
Basic, Amos saves programs in its Like Amiga Basic and GFA

it will do.

F10 for the bottom row. pressing F1-F5 for the top row, F6-Buttons can then be selected by

mouse around. The file requester hands off the keyboard to push the tainly better than taking your once you get used to it, it's cerers, it does work very well and face will be strange to Amiga own-Although this type of user inter-





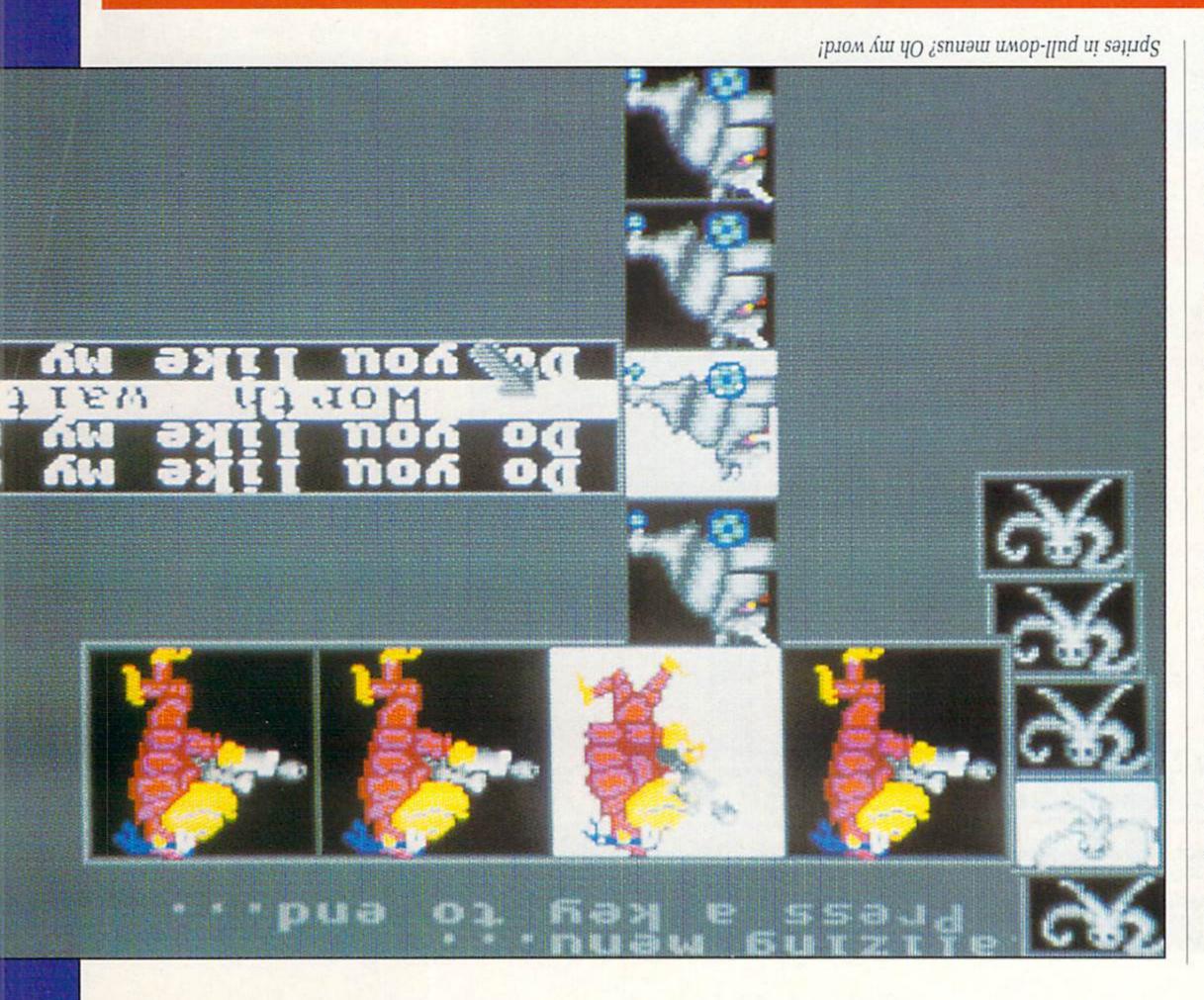
product's only weakness

Move -286, 6, 528 Jung Loop"

ou can remove the next line, it will still work (but flicker!)

AMIGA COMPUTING May 1990 65 The Amos editor, the





one accessory and your program under development. Where possible, Amos and the accessory will work together for the common good – for instance, sprite editor will be instantly accessible to the program under development in Amos. Not everything Amos does is

anti-establishment. It knows about devices, fonts, it knows about devices, including RAM: and hard drives, it knows about the IFF standard for graphics, and although Amos itself doesn't utilise pull-down menus, Amos Basic has the usual array of menu and submenu commands menu and submenu commands which will allow you to write them

into your programs.

In fact, Amos Basic takes menus a step further by allowing menus to

be placed anywhere on the screen, allowing them to be moved by the user, and allowing the programmer to use bobs in them. This has to be

seen to be believed.
Sprites are the h

Sprites are the heart of any arcade game, and Amos gives you the power to control both hardware and software flavours (bobs) totally. The commands which totally. The commands which

A programmer's tale

tasking with other programs. Isn't this a considerable restriction for an Amiga application?

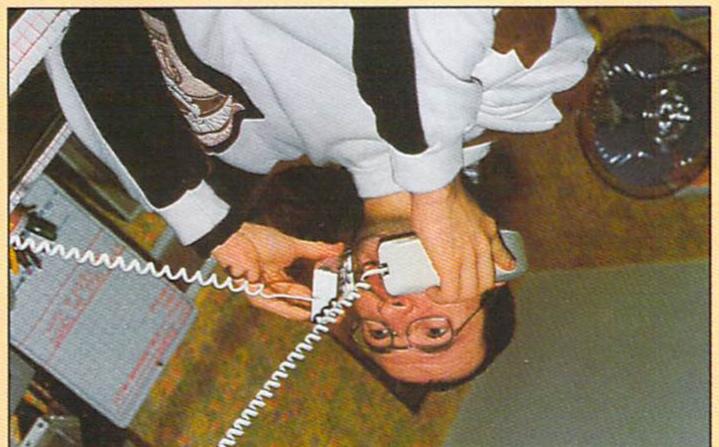
"Amos does multi-task!" François retorts. "It is a clean program, I really respect everything in the Amiga. I even open one Intuition screen to use its rastport for my graphics output. Writing a language you could not quit from would have been suicide – the system is intact when you leave tem is intact when you leave

I showed François an early draft of my preview, which laid into Amos because it wouldn't let you access Workbench or AmigaDos while it was running. I was extremely surprised by his reaction.

"Your article has pushed me to take a very big decision", he told me after reading it, "I will make Amos multi-task. I was wondering whether to do it or not, and your article has made me take the plunge. Now when Amos is merging-ing-in and tokenising an Ascii file

you will be able to use Protext!"

The icing has been put on the cake. Now where did I put that cherry...?



all these graphic outputs are truly independent – and it is very fast. The file requester, for instance, uses its own screen. It will remain the same whatever the resolution of the graphics used in your pro-

gram.
"I would have saved months if I had used Intuition, but then Amos would not have been as fast as it is a set as it."

What about multi-tasking? All the development versions of Amos I have seen forbid you from multi-

Intuition, why has he not used it to program Amos with? Why has he used his own screen system?

"I agree it would have been much easier to program", he says, "but Intuition windows are desperately slow. What I really wanted was an editor window and a command window independent from the program area. Take a look at the program area. Take a look at my editor would have looked using my editor would have looked using

Intuition windows. "With my own screen system,

FRANÇOIS LOINET finished writing STOS in 1988. The obvious next step was an Amiga conversion, and work on this was already underway early in 1989. He was new to the Amiga, and was eager to learn all about it so he could make learn all about it so he could make its older brother.

It didn't take François (pictured right) long to see the light. "I'm not an ST programmer any more", he proudly brags. "Who could remain an ST fan when he has an Amiga as well?"

It took him a little longer to get used to Intuition, but now he loves that too. Except for the windows. "The idea of making an environment that looks the same for everything is good," he agrees, "but I find the Intuition window a little find the Intuition window a little

sad. It doesn't look nice".

Like plenty of others, he hates AmigaDos. "It really is the worst disc operating system I know", he moans. "It's full of good intentions like making disc access safer, but the result is not as good as the ambitions are high".

So if François is such a fan of

U'#/SOIHAWW9+LX3L/S9WILSITTSOW:SOW 11444 Jasus! 1100 354,18323018 PERSE SA ASCIL Program Text buffer: 39998 1:103 isnil meen!

Sigh. Yet another file requester design to get used to

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USE..... EVSE OF

The editor will take more

sailing all the way. hut otherwise it's plain than a bit of getting used to,

SPEED

top it. Amiga. Nobody will ever Basic interpreter on the Whoosh! By far the fastest

you more for your money. programming language gives Cheap at twice the price. No NYTOE'''

%**6 OVERALL

never be the same again. Programming in Basic will symbiotic with the Amiga. destined to become Amos Basic is surely

> multi-task on thy Amiga." carved on it would be: "Thou shalt stone tablet up there now; and Mount Sinai he'd find another latter day Moses was to climb

go on for quite a while. Clearly, machine code assembler... I could graphics package, a sampler, help program, a comprehensive of my list, followed by an on-line qot si rotibe txet wen s - wet a lo Amos Basic programs. I can think to help with the development of only useful for writing accessories utilities are concerned, Amos is So as far as applications and

those ideas come to fruition, watched it grow, watched most of rough STOS-like shell. I've its infancy. In those days it was a mort somA gniwollot naad av'l applications writing front. there is plenty of mileage on the

can hold a candle to it. But don't still. No other Basic on the Amiga first saw it, I'm excited about it I was excited about it when I tweaked until it purrs. watched it being twisted and

demo disc and see for yourself.

advert, cough up two quid for the

take my word for it - search out the

much more powerful. there are more of them and they are the ones in Amiga Basic, except of ralimis are satirgs ataluqinam

have seen of sprites being moved maybe faster, than those examples I machine code, it is easily as fast, smooth as those moved by pure movement isn't as fast nor as the Amiga itself, and while sprite Amos Basic are those imposed by The only real restrictions in

appears, which shouldn't be too Once the Amos Basic Compiler

speed improvements will be availlong after the interpreter, further

is probably right. task, says the programmer, and he task. Games don't need to multi--illum lliw ii ni nəllirw gnidlon The Game Creator, which is why ing games, indeed it is billed as Amos Basic is intended for writ-

on the Amiga must multi-task. If a but, say the purists, applications - that to aguone footq ene seiros utilities as well - the Amos accesperfect for writing applications and The shame of it is that Amos is

Iqurrəlni no noilaminA

and detect collisions. and mouse, the positions of sprites can check the state of the joystick sprites or sequences of sprites. You you can animate and move screens, Amos Animation Language. With it HIDDEN inside Amos is Amal, the

committing them to the program test chunks of Amal code before which will allow you to write and includes an Amal Editor accessory react unpredictably. So the package Iliw ti bas biquts gaidtemos ob moves on the screen, but tell it to Amal speeds up anything that

proper,

of your program. the interpreter can work on the rest mands it finds there. Meanwhile the strings and execute the comof a second to the start addresses of interrupt which jumps every 50th 0,51\$: Move On it can start an command like Move 1,S1\$: Move stored, when presented with a where in memory those strings are in strings. Because Amos knows The Amal commands are stored

anything else you wanted. be pressed, it could equally well do of nottud seuom their adt rot qool gram just sits and waits in a Repeat the Move On command the protical hold gone wrong. Once past it vertically, like a TV with its verscreen called MyPicture and scroll the program will load an IFF which it can be used. When run, diw esse edt bas lsmA lo rewoq The listing below illustrates the

Until Mouse Key=2 Repeat no JemA : \$52,0 JemA : \$12,1 JemA Rem End of AMA bo bn3 meA 252=252+ numb 2creen;" Move 0,-320,50;" "+\$ZS=\$ZS ":0=Y 191 "+\$ZS=\$ZS ":02,035-,0 BVOM "+\$22=\$52 252="Screen: Let Y=320;" Jump Screen;" "+\$1S=\$1S "+\$1S=\$1S Move 0,-320,50;" Let Y=320;" "+\$1S=\$1S ":05,025-,0 avoM "+212=215 S15="Screen: Let Y=0;" Rem Start of AMAL program Channel 1 To Screen Display Channel O To Screen Display Screen Clone 1 Screen Display O,,,,320 O,"sautsigvM" itI bsol Screen Close D

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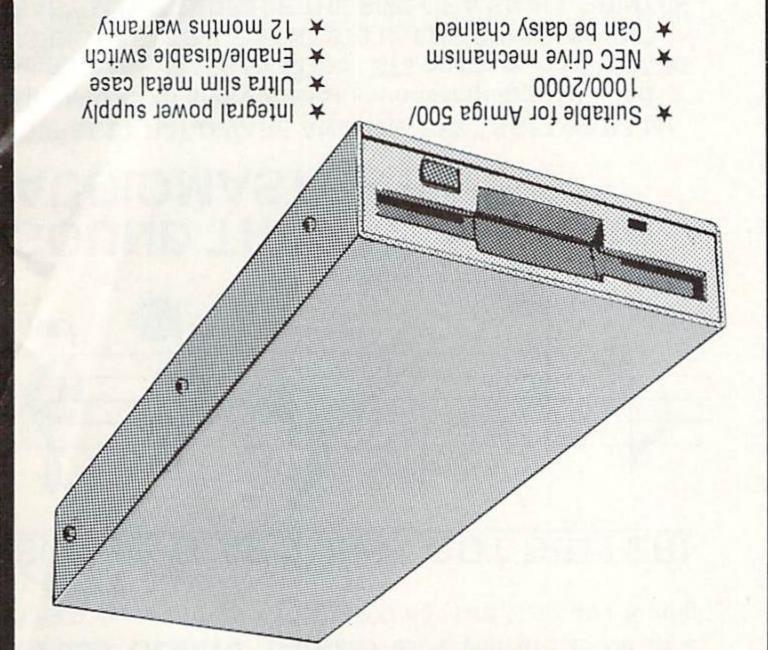
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Other chapters offer help with such version 1.3 of the system software. required. Best of all, it is up to date for purpose, and details of the parameters The listings cover the functions, their extensive Amiga library functions. the large section documenting the Towards the end of the book comes

Paul Andreas Overaa extremely useful. so this new book is going to be and writing your own printer drivers, things as font creation, keymap use,

> conventions. general Amiga programming notes on programming style and

of the of the and the use of the topic is well explained, and covers Workbench environment. This last the way programs operate under the CLI and an in-depth examination of chapter on parameter passing via the These are followed by a useful

As might be expected, the section icon library routines.

The text and examples dealing with gameport devices are all well covered. serial devices, keyboard, timer and on devices is fairly hefty. Parallel and

The chapter on IFF files is possibly the serious programmer. examples are a potential goldmine for read about elsewhere, and the many of which you are unlikely to because there are plenty of good tips, devices deserve a special mention the use of the trackdisk and audio

extra help has been offered. well known in Amiga circles and little information offered is already very a bit mundane. Much of the the only part of the book which seems

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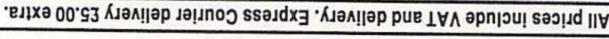
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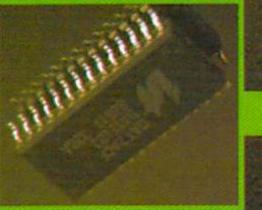
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I gnitsi.1

```
Imereq," (1-0) ;mul
ubneq elqmis not netemmereq" TUQNI
                           COLOR 2
                              STO
                        WHILE TIMER
       ON WENN CORNB Choice: MENU ON
   FOR a=2 TO 4: MENU a,0,0," : NEXT
           MENU 1,2,1,"Quit program
       MENU 1,1,1"Restart program"
               MENU 1,0,1,"Options"
              PALETTE 6,.17,.17
                    PALETTE 5,1,1,0
                    PALETTE 4,1,0,0
                  PALETTE 3,1,.53,0
                    PALETTE 2,1,1,1
              PALETTE 1,.33,.33,.33
                    PALETTE 0,0,0,0
                              (S) 74'(
DIW SHYBED AUGM(2) 'KJ(2) 'KS(2) 'K3(2
                         DEFINT B, C
                            1'0'(272'
WINDOW 1,"Three Pendula", (0,0)-(631
               SCREEN 1,640,256,3,2
 ' Shows the behaviour of 3 pendula.
```

```
RungeKutta y()
                WHILE NOT endflag
                             NEXT
       TIME(0'9)-21Eb(025'0)'0
          FOR a=20 TO 150 STEP 65
                  MINDOW OUTPUT 1
                   1'0'(072'029)-(061
WINDOW 4,"Chaotic pendulum", (420,
                 1'0'(072'517)-(061'5
WINDOW 3, "Monlinear pendulum", (21
                     1'0'(072'012)-(0
WINDOW 2,"Linear pendulum", (10,19
                              STO
                         10.=(2) 4
                         10.=(4) /
                         ξ0,=(ξ) γ
                         ¿(2)=,5
                         50.=(1)x
                         ¿.=(0) x
                              0=1
                         0=blooox
                        O=gelibns
                          Emerag," (f
```

-O) fenittud not netemeneq" Tuqui

INPUT "Parameter for Van der Pol?

Zmened," (4-0)

573 I TUGTUO WOONIW IF xcoord=632 THEN 1+b1000x=b1000x bendulum y(4)*3!,5 4 TUGTUO WOONIW E,(0) y mulubnaq WINDOW OUTPUT 3 beugnium y(2)*3!,4 WINDOW OUTPUT 2 bsel(xcoord,150+15*y(4)),5 PSET(xcoord,85+15*y(0)),3 PSET(xcoord,20+35*y(2)),4 I TUGTUO WOONIW

TIME(0'9)-SIEB(835'0)'9

FOR a=20 TO 150 STEP 65

MEND

MEND

MINDOM CFORE ¢ MINDOM CFORE 3

MINDOM CFORE 5

1 +1=1

END IL

NEXT

MINDOW OUTPUT 1

0=broosx

nox lauream...

ивм гсівисв ου this revolutionary sairas sin lo owi traq Alastair Scott presents unrelated irregularities. together all kinds of Atlantic, chaos ties

эні тэчо впімэла

spuolo ot sgairts no

From weights swinging

usually leads to equations which cannot be solved by hand.
The Navier-Stokes equation, the

lynchpin of fluid dynamics, is nonlinear, so nonlinear in fact that approximations have to be made before even the most powerful computers can solve it for simple situations.

Twenty-five years ago Edward

Lorenz did a terrible hatchet job on
the Navier-Stokes equation, turning it
into a set of three equations in three
unknowns, x, y and z, with three
parameters a, b and c ... a=8/3 or 2.67,
b=10 and c varies in Lorenz's original
work.
Listing II solves these equations for

Listing II solves these equations for x, y and z, displays the variation of x, y and z with time across the screen and plots x against y, y against z and x against z and x against z (phase plots) in the smaller window.

Two solutions are displayed in

different shades of the same colour.

The second solution has the initial values of x, y and z different by about one part in 100 from the first.

Lorenz solved these equations on an

analogue computer – modelling equations by altering electrical components – called the Royal McBee Decause most scientists distrusted because most scientists distrusted computers until at least 10 years later. What he found shocked him. But at first nobody took any notice.

my program) worked out a critical value of c which is roughly 25. Try c=22 – you will see that x, y and z oscillate to start off with but that the oscillations die out.

Try c=30 and unexpected things

happen. The oscillations gradually build up, then the two solutions suddenly go in completely separate and unpredictable directions. Increase c even further and the oscillations build up even quicker.

Remember the two signs of chaos as

Remember the two signs of chaos as discovered by Poincaré:

• Even if the system seems orderly.

you may get completely random results which cannot be predicted.

Change the initial conditions slightly and the final result is enormously different.

They are both seen in these

solutions, Lorenz, completely unaware solutions. Lorenz, completely unaware of Poincaré's work, wrote a paraphrase: "Certain ... systems may exhibit either periodic or irregular behaviour when there is no obviously related periodicity or irregular

see and understand its motion.

Notice the strange behaviour, which is the reverse of the simple pendulum – velocity is greatest at the extremities of the motion. Putting the parameter equal to zero again gives you the simple pendulum. No chaos yet; keep simple pendulum. No chaos yet; keep simple pendulum.

UPPOSE you apply a driving pendulum mounting up and down pendulum mounting up and down with a given frequency. When you find the correct frequency you will notice the amplitude of motion increasing with time. This is tesonance. Resonance has caused tesonance. Resonance has caused badly designed machinery to fly apart. If you shake the nonlinear pendulum mounting chaos—at last!—

pendulum mounting, chaos – at last! – appears. The third pendulum demonstrates this, It is a nonlinear system known as the Duffing oscillator, driven as before. It is a mathematical model of a flexible metal strip suspended between two powerful magnets.

For low values of the parameter – less than 0.1 – the strip remains in the vicinity of one of the magnets. As the parameter passes through 0.1, the strip suddenly starts whipping backwards and forwards. Above 0.11437, there is chaos – the strip can be near either of the magnets and there is no way of telling which one. The driven Van der telling which one. The driven Van der Pol oscillator also exhibits chaos.

Pol oscillator also exhibits chaos.

Nonlinearity is tremendously

important, although it is furiously papered-over in text books and popular accounts of science because it

school they are horrid things. At inexhaustible source of examination questions which put you off them very quickly. This is a great pity. As usual, teachers never tell you the whole truth, and certain pendula exhibit the signs of chaos very clearly.

Take a look at Listing L. which,

when run, shows three of the villains oscillating away and displays their displacements with time at the top of the screen.

The first pendulum is a simple one with friction opposing the motion, causing oscillations to die away. What you aren't told in school is that the equation which governs its motion is fiddled to make it linear – the sine of fiddled to make it linear – the sine of the angle the pendulum makes with the vertical is replaced by the angle this jar is replaced by the angle sine of itself, so that you can write down a solution to the equation.

With the sine present, the equation is nonlinear; there is no exact solution, so a computer must be used to solve it numerically.

The linear equation is valid for

small oscillations only – a few degrees from the vertical at most – the nonlinear equation for any size of oscillation. Putting the parameter equal to zero gives an undamped pendulum, which oscillates for ever. This is completely unrealistic and never happens in nature, despite what never happens in nature, despite what you may have been told.

the Van der Pol oscillator. Strictly speaking it is an obscure electrical oscillator, but journalistic licence has made me turn it into a pendulum or mechanical oscillator so that you can

SUB pendulum(y, colour)STATIC

STO

```
RETURN
                                                                                                                                                                              END IE
                                                                                        SCREEN CLOSE 1:END
   FOR a=1 TO 4:WINDOW CLOSE a:NEXT
                                                                                                                                          WEND BEZEL
                                                                                                                                                                                           EFRE
                                                                                                                                           f-=gelibns
                                                                                                           IF MENU(1)=1 THEN
                                                                                                                                                                                      : 90 rodo
                                                                                                                                                                                      END 2NB
(+*#8779912.1)203*Ema7aq+(4) yy*(4) yy*
(4) \(\frac{4}{2} - (7) \(\frac{4}{2} \) \(\frac{4}{2} \)
                                                                                                                               deriv(4)=yy(5)
                                         deriv(3)=-yy(2)-parami*yy(3)
                                                                                                                               deriv(2)=yy(3)
                                                                                                                                                                          (1-(D) XX*
deriv(1)=-yy(0)-param2*yy(1)*(yy(0)
                                                                                                                                deriv(0)=yy(1)
           54ARED parami, parami, parami, eps, t
                        SUB oscillate(yy(), deriv())STATIC
                                                                                                                                                                                       END SUB
                                                                                                                                                                                             NEXT
                                                                                                                                                          )+Kt(9))/30i
```

```
ya(a)=ya(a)+(k1(a)+2*k2(a)+2*k3(a
                        FOR a=0 TO 5
              oscillate ynew(), k4()
           ynew(a)=ya(a)+k3(a)*.2
                        FOR a=0 TO 5
               oscillate ynew(),k3()
                                 NEXT
           ynew(a)=ya(a)+k2(a)*.1
                        FOR 8=0 TO 5
               oscillate ynew(), k2()
                                 NEXT
            ynew(a)=ya(a)+k1(a)*.1
                        FOR a=0 TO 5
                 oscillate ya(), ki()
  J, eqs, Emsieq, Smeraq, fmeraq dasAH2
           SUB RungeKutta(ya())STATIC
                                END SNB
                                     10
'Jnojoo'(Lh't+puex)-(Et't-puex) ENIT
             LINE(100,0)-(xend,45),1
                       xend=100+20*y
```



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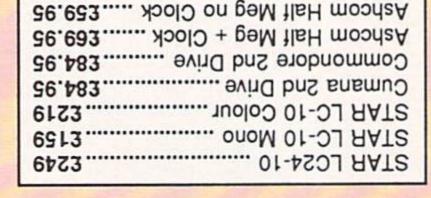
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equator or stretched at the poles. has either to be squashed at the dimensional grid on to a sphere - it first found, you can't fit a two-Messrs. Mercator & Co., cartographers, approximated by a grid of points. As

is like and we don't care too much for because we know what polar weather weather at the poles. This is bad news, Both result in over-emphasis of the

Given all these problems, it is available now. times more powerful than those require computers 10,000 to 100,000 solutions reasonably quickly would 6 x 4 x 3 kilometres - and still obtain I kilometre as opposed to the present shallow enough - each element 1 x 1 x Lastly, to make the grid small and

of course, such as hurricanes over four days ahead. Bar the odd hiccup, reasonable predictions for three or effect of the problems, can make sorts of clever tricks to reduce the to powerful supercomputers and all miraculous that the Met Office, thanks

populations, and how they grow or ● NEXT MONTH: Simulating England.

FOR 1=0 TO 2

shrink.

later. could be set off in America a week the Amazon basin, a thunderstorm

Clouds and dust are a complete approximately true. assumptions are not even temperature gradient, but both pressure at all heights and a constant usually considered to have the same assumptions have to be made. It is modelling the atmosphere all sorts of Secondly, to even consider

storm could be set Viliatind b li

Thirdly, to solve the Navier-Stokes greenhouse effect and global warming. uncertainty about prediction of the of the sun's rays, hence all the they affect the reflection and trapping mystery. Nobody really knows how

ensing America the Amazon, a ni zgniw zii zibəd

equation the Earth's surface has to be

PALETTE 2,1,1,0

future is not possible by any method". prediction of the sufficiently distant behaviour in the forcing system ...

other, and so on, with the times being lobe, then a different time around the round the point at the centre of one may spend some time circulating plots all have two lobes. The solution You will see that for c>25 the phase

Such points, known as strange completely unpredictable.

Lorenz, a meteorologist, also noted shows a pair of strange attractors. phase plot of the Duffing oscillator attractors, are another sign of chaos. A

disturbances. considered without introducing huge slowly; anything smaller cannot be in the atmosphere which change very scale structures - over 1,000 km long -Boussinesq waves. These are large itself in discussions of Rossby and atmospheric dynamics will immerse small scales. Any course on with, the atmosphere is chaotic on essentially, futile because, to start that weather forecasting was,

butterfly decided to beat its wings in after the double-lobed phase plots. If a

Lorenz named the Butterfly Effect

```
RETURN
                                                                                                               1'9'(002'009)-(07'
                                                                 () () kj()
                             END IL
                                                                                           WINDOW 2,"Butterfly biagrams",(30
                                                                     SHARED a,b,c
                               END
                                                                                                                          STO
                                                        SUB RungeKutta(ya())STATIC
                   SCREEN CLOSE 1
                                                                                                                         NEXT
                   MINDOM CFORE 5
                                                                                                                z(1)=FNrand
                                                                             MEND
                   MINDOM CFORE J
                                                                                                                y(i)=FMrand
                                                                 MINDOM CLOSE 2
                       WEND RESET
                                                                                                                 FOR i=0 TO 2
                                                                MINDOW OUTPUT 1
                                ELSE
                                                                                                         INPUT "Value of c";c
                                                                           MEND
                       f-=gelibns
                                                                                                                COLOR 2:PRINT
                                                b2E1((7)/+7+)(0),24+2+)(1),4
                  IE WEND(1)=1 THEN
                                                                                                                   p+9+3)/(p-9-1)
                                                b2E1(520+¢*/(1),24+2*/(2)),3
                               : 90 rodo
                                                                                           PRINT"Critical value of c is";b*(
                                                 DSET(75+4*(0),54+2*y(1)),2
                                                                                                                COLOR 3:PRINT
                                                              MINDOW OUTPUT 2
                               END 2NB
                                                                                                        INPUT "Value of b";b
      deriv(2)=-a*yy(2)+yy(0)*yy(1)
                                                                       END IE
                                                                                                         E;"E to sulev" TUQNI
                                                                    U=jnuos
deriv(1) = -yy(1) + c*yy(0) - yy(0)*yy(2)
                                                                                                                  CLS:COLOR 2
                                                                        STO
          deriv(0)=-b*yy(0)+b*yy(1)
                                                                                           PALETTE 2,1,1,1:PALETTE 3,1,.53,0
                                                           IF count=632 THEN
                       SHARED a,b,c
                                                                                                            0=fnuos:0=gslibns
                                                                Count=count+1
       SUB Lorenz(yy(), deriv())STATIC
                                                                         NEXT
                                                                                                                    WHILE TIMER
                                                                               5+11
                                                                                                  ON MENU GOSUB choice: MENU ON
                               END 2NB
                                                                                               FOR a=2 TO 4: MENU a,0,0,": NEXT
                                             PSET(count,50*(i+1)+2*z(i)+2)
                               NEXT
                                                                                                       MENU 1,2,1,"Quit program
                                                                 5 OT 0= i 903
                         )+Kt(!))/300i
                                                                                                  MENU 1,1,1"Restart program"
. \a(!)=\a(!)+(K1(!)+5*K5(!)+5*K3(!
                                                                         NEXT
                                                                                                           MENU 1,0,1,"Options"
                                                                                  +5
                       FOR 1=0 TO 2
                                                                                                          PALETTE 1,.33,.33,.33
                                             PSET(count,50*(i+1)+2*y(i)),i
                 () kt() kt()
                                                                                                                PALETTE 0,0,0,0
                                                                 FOR 1=0 TO 2
                                NEXT
          ynew(i)=ya(i)+k3(i)*.02
                                                                                                                           (Z) 7x (S)
                                                              I TUGTUO WOONIW
                                                                                           DIW SHYKED \hem(2) k1(5) k5(5) k3(5
                                                               RungeKutta z()
                       FOR i=0 TO 2
                                                                                                                       DEFINT !
                                                               RungeKutta y()
                 (Orenz ynew(), k3()
                                                                                                  DEF FNrand=1+RND/100-RND/100
                                                              WHILE NOT endflag
                                NEXT
                                                                                                                1'02'(272'129)-(0
                                                            PALETTE 7,0,.53,.53
          ynew(i)=ya(i)+k2(i)*.01
                                                                                           WINDOW 1,"The Lorenz Equations",(0,
                                                              PALETTE 6,.53,0,0
                       FOR 1=0 TO 2
                                                                                                           2'E'952'079'1 N3383'5
                                                            PALETTE 5,.53,.53,0
                 (orenz ynew(), k2()
                                                                PALETTE 4,0,1,1
                                NEXT
                                                                                                   . Solves the Lorenz equations.
                                                                PALETTE 3,1,0,0
          ynew(i)=ya(i)+k1(i)*.01
```

II gnitsiJ

Just for them here are some codes. I certainly hope so, it's mega-addictive. lamers who can't get their acts together. been re-released I'll bet there are a lot of first came out. It's a skill game. Now it's hooked on Helter Skelter ever since it IAN J PARLEOUS says: I've been

Level 31 - Ball Level 21 - Flip Level 11 - Spin

the way, your parents have dreadful Well thanks, Chris, I'll try that. By RAINBOWT. Wizball. Press pause and type in an amazing li'l cheat for Ocean's CHKIS GLOVER says: I've found out

be a very nice girl called Nancy who taste in notepaper.

Sodan Sword of

Wizball

Helter Skelter

F9 - advance time by one hour. different coordinate system. F10 - display your location in a in coordinates. = - display your current location R – rescue the princess. B - summon the the golden swan. any terrain. Arrow keys - move rapidly over

have the following key commands:

value. Then save it. When this saved

of the save game file to a non-zero

to - qsZweN msrgorq nismob

discovered yet. Here's the deal:

for Faery Tale that no one has

similar file editor - to patch byte 18

saved game file and use the public

To turn on the cheat mode, take a

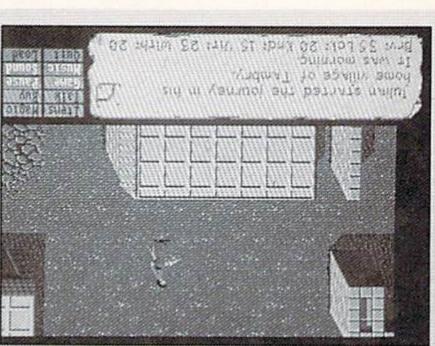
kept secret that there is a cheat mode

MAX TENNANT says: It is a well

secret cheat mode, in which you

game is loaded it will enable the

available from most PD pushers. inside the program. NewZap is have created by saving games from Tale master disc, only on discs you shouldn't try using it on your Faery careful using NewZap. You Note that you should be very



press Return to skip levels. score table for infinite lives, then program. Type NANCY into the high England. But her name lives on in the any more 'cos she came to live in at Discovery Software. She isn't there worked in the marketing department CHRIS ASPINALL says: There used to

Fighter Bomber

do anything else. doesn't seem to message but brings up a the pilots names MICK as one of HOORAY FOR ni gniqyT

missions. all of the played to access allow any pilots screen. This will bottom of the message at the these bring up a The first two of OF BOOMERANG. DO' BUCKAROO SO WHAT IF I names either to one of the pilot's the game, change the beginning of select a pilot at

are prompted to

says: When you

IVN HVKKIS

his last column

Mith sabub uoy

tin ll'on sonub

19bnoy stin 9h

Amiga. Before

sid seu ot mid

little difficult for

This makes it a

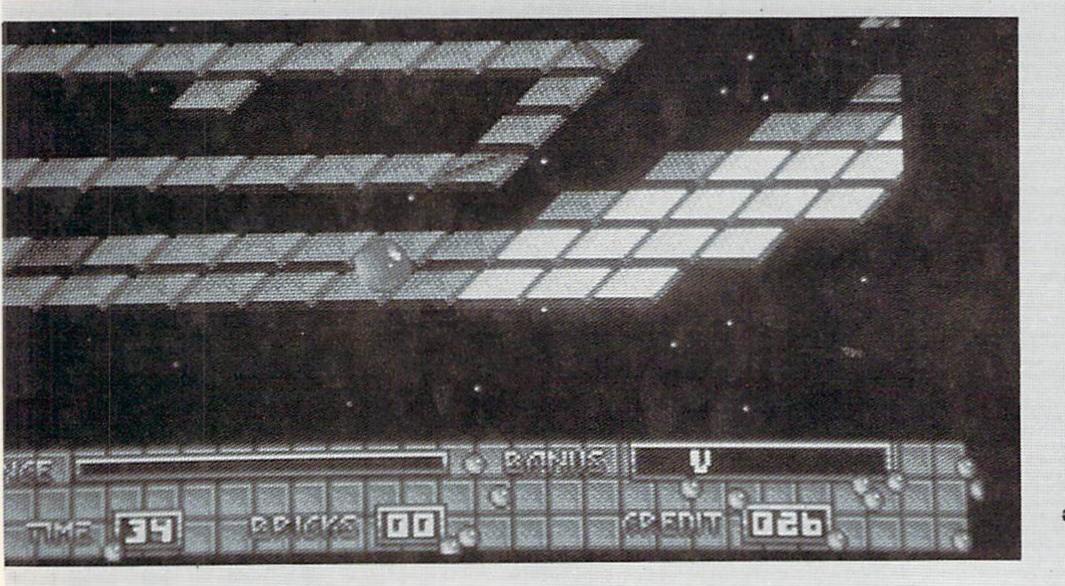
across Africa

off on a trip

in a Land Rover.

Max Tennant is

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what happens!

any stage type GASS, and see

to Test Drive 2. At the start of

to tell you what it does. Load

teaser for you - I'm not going

SUSAN VOLER says: Here's a

amazing little graphics show: including the final one for an passwords for each level, Marble? Welllll... here are the 10 tedious levels in Magic patience trying to get through the STUART BUSHBY says: Losing

Level 10 - Impossible Level 9 - Complicate Level 8 - Cigarettes Level 7 - Television Level 6 - Copywriter Level 5 - Cleverness Level 4 - Connection Level 3 - Toothpaste Level 2 - Everywhere Level 1 - Advertiser

The End - Interested

100 100 OINE

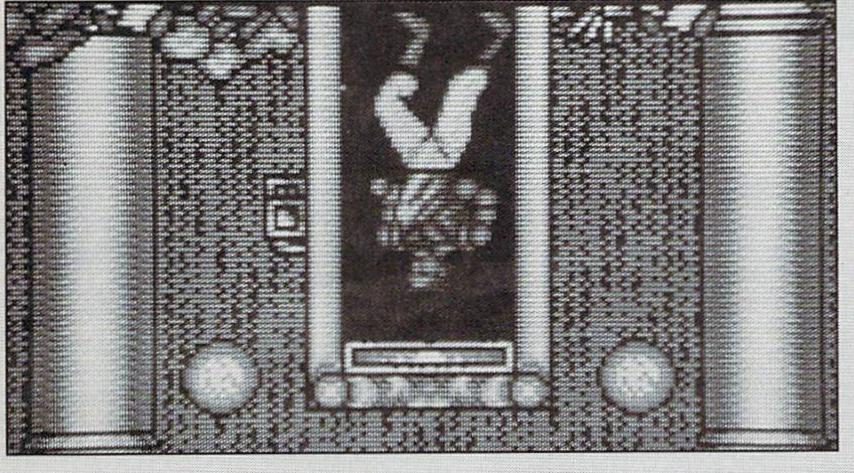
To defuse the booby trap, pull the room with an object hidden in it. flash on the panel when you enter a a droid. A small orange blob will Search the packing case after killing object you must stand in front of it. BEN COMDALL says: To pick up an

est Drive

2

smaller. Then jump over the now can be used to make the big hole tie. Here you get the plank, which To get into the night club wear a under the bed for a vending token. find stooge. Trade the jewel from two land mines and one hole to red wire and take explosives. Jump

Use the token in the vending small hole.



.uni

Put the tax up two per cent every Fastest from the Speed menu. commercial zones. Then select owt bas senos lairtsubai plant, three residential zones, three landscape and put in it one coal

DAVID KEEN says: Choose a

After the programme put tax up watch Miami Vice. your computer for long enough to then select Auto-budget and leave year until it reaches 10 per cent,

residential areas close to each other, DEREK RAWSON says: Build lots of police or fire stations. \$65,000. Don't build any railway, By the morning you should have on overnight (turn the monitor off). by one per cent, leave the computer

Make sure you put the rate down lots of cash. in January you will have collected and when the tax screen comes up that change the game speed to fast, will not leave. When you have done tax rate to 20 per cent. The people turn Auto-budget off and change the them. When it comes to December after that build tiny bits of park near

some water near to it. a nuclear plant, make sure there is transport departments. If you build per cent to fire, police and Never give anything less that 100 the option to go with these figures. below 7 per cent before you select

Prison

Sim City

AMICA COMPUTING May 1990 79

secretary to insert the object. Have

near the dustbins. Take object, go

south-west from the bank. Search

vault and get credits. Try this: Go

off the guy in the park to open the

things like getting the combination

more you find. There are some neat

There is loads to this game, it's

great. The more you play it the

open the first level locked door.

to open the door, get plug three to

plug two. Take it up in the first lift

Give the ticket to the guard. Find

machine, choose inter-city as the

destination and take the ticket.

past the teleport and to the



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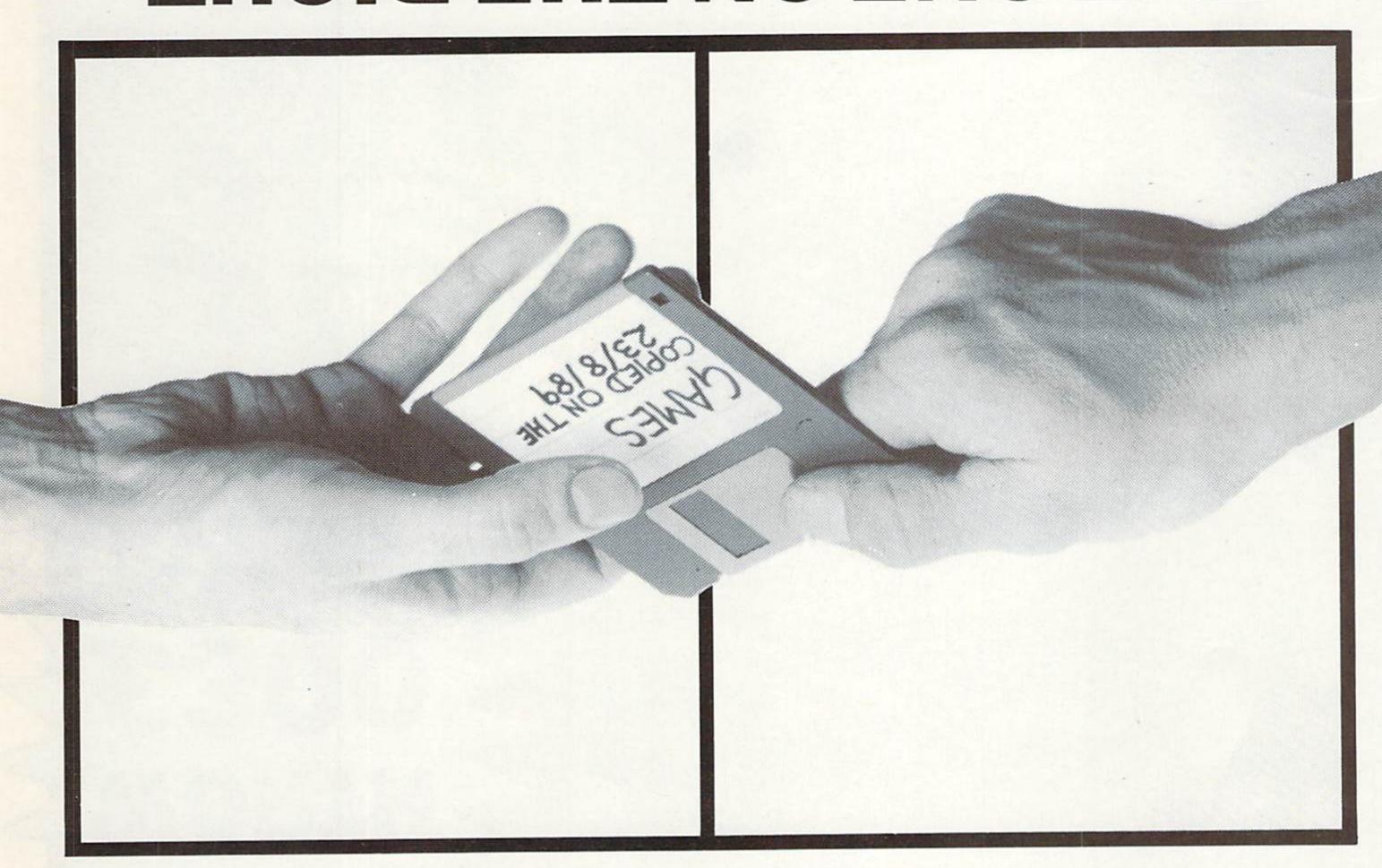
Sanidoam XalaT a otni ReimA ym nius I ob woH

computer to double as a Telex machine. And just use your ordinary telephonel Or you could do what more and more Amiga Computing users are doing - use your over the first year of a minimum of £2,109. (All prices include VAT.)

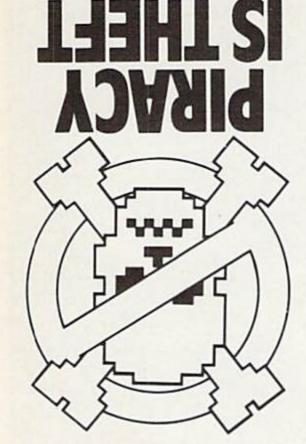
separate telephone line, costing £101 to install, plus £404 a year rental. That's a total outlay cost you £1,604 (the Whisper), the dearest £2,892 (the Cheetah). You will also need a You could go the conventional way and buy a dedicated Telex machine. The cheapest will

to go on Telex? How much does it cost

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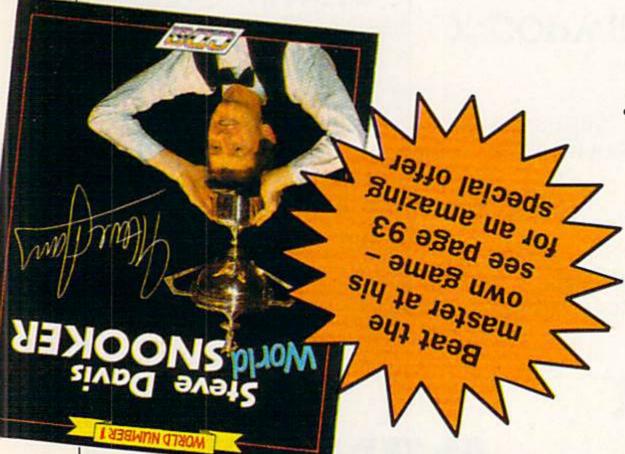


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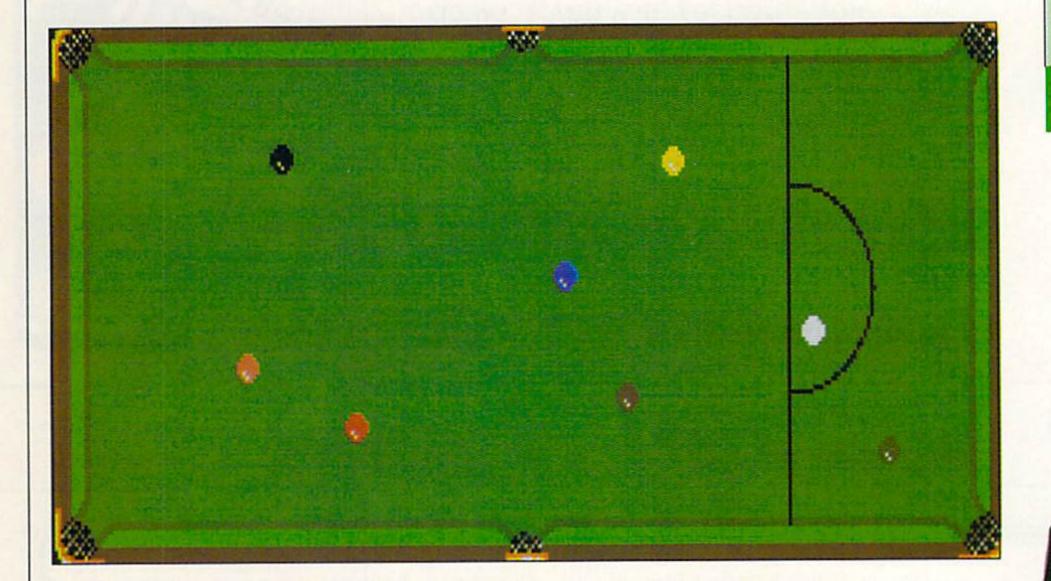
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we told you the answer. But we won't. Good luck, and may the best person win.



МЯОЧ УЯТИЗ

I calculate the theoretical maximum score to be:

systs :of mrol batalamos mov	haas
	Date
р	Signe

Send your completed form to: Steve Davis World Snooker Competition, Amiga Computing, Europa House, Adlington, Macclesfield, SK10 4NP. Closing date May 31, 1990.

play and agree to abide by them.
I have read and understood the rules of
Phone
Postcode
Address
эшвИ

Rules of play

The first correct entry drawn from the magic bin liner on May

31 will win the snooker table.

The subsequent five correct
entries drawn will receive runnersup prizes of cues signed by Steve
Davis.

Feel free to photocopy the entry
form if you don't want to vandalise
form if you don't want to vandalise

form if you don't want to vandalise your magazine. But be warned – if we find anyone sending in multiple entries we'll send Barry Hearns and the boys round.

• Employees of Interactive
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Publishing and people who don't have space for the table in their living rooms are disqualified from entering.

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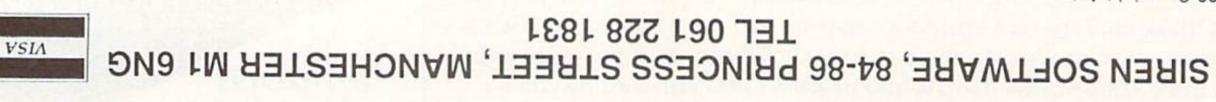
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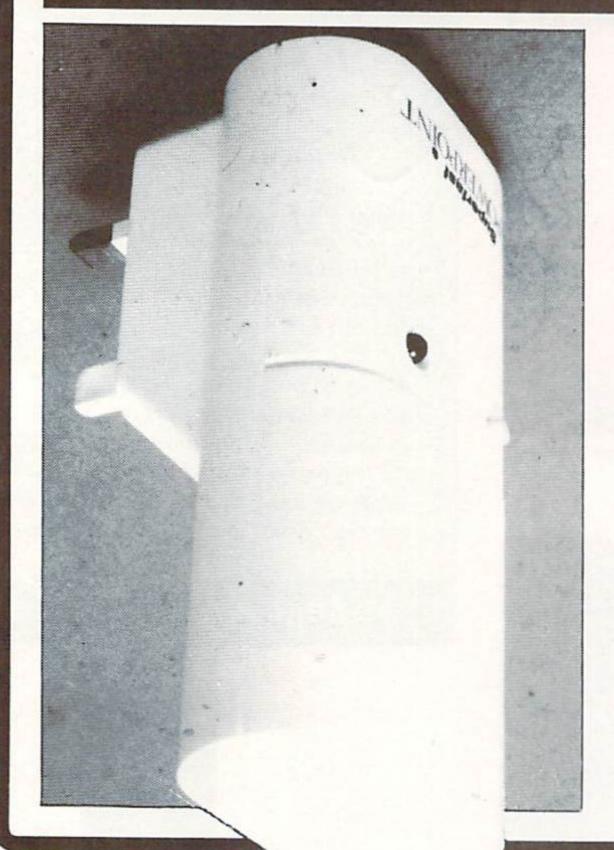
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Manapuom is a mathematical language. any sort of programming language. It and the answer is of course that it isn't "Stadt ei ageugnel gnimmergorq to troe something along the lines of "What 10 bilew from APL and they will say HOW someone a function listing

Panguage A Programming Nic Veitch looks at is its name. Here 19 A tuodo sigmis si Тће опју thing which

all the keys and sticking them that you would possibly prefer removing small screwdriver. The more sane of

that you can easily reconfigure your This method has the added bonus

They don't just tell you where the The stickers are very important. run some German software. keyboard as AZERTY if you want to

Years ago, when I had a C64, I used of is compatibility. not that one. The word I was thinking to explain this sort of behaviour. No, magically swap about. There is a word brackets, quotes and colons will When you run APL all the familiar symbols are, but where everything is.

JAA ns of relimis ad bluow know how to type. Their experience around to confuse people who didn't to take the keys off and swap them

type again. places. It would be like learning to all of his symbols were in different introduced to an environment where programmer's if he was suddenly

Writing a program is a very different IBM4040, a Vax, an A500 or an ST. the same, whether you are using an the keyboard layout for APL remains In the interests of system portability

> simple. some cases I think these are too going on. There are examples, but in APL illiterate to get an idea of what's and gives enough information for the and nomadic. It is fairly well written meant by the terms monadic, dyadic and a discussion on what exactly is definitions of all the strange symbols do. A lot of this is taken up by

I managed a fairly straightish set by Amiga Computing reviewer way. of two ways - the cunning way or the is a task which can be tackled in one where to put all the little stickers. This sample files included. It also tells you Intuition and a breakdown of the Amiga-specific guide to how APL uses more of a manualette, an HE second manual is really

keys and pressing them flat with a lowering them on to the front of the

> formulae in a way that was easy to writing complex and often repetitive of mathematical notation, a way of world really needed was a new form called Iverson who decided what the Back in the Sixties there was a guy

He felt so strongly about this that he understand.

the symbols for the language and the in 1962, produced a book outlining gave lectures, wrote papers and then,

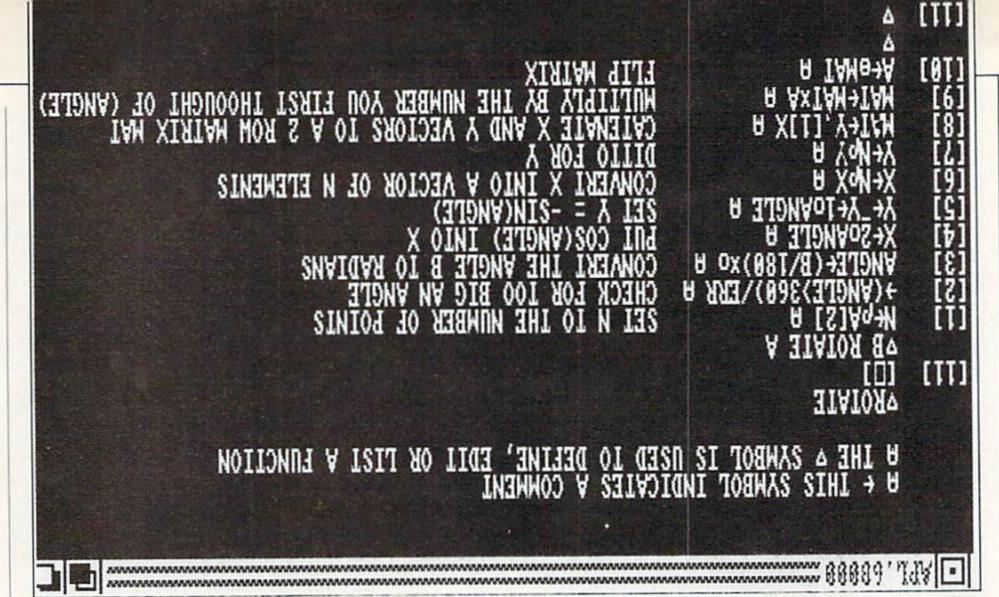
The book was called A format it would take.

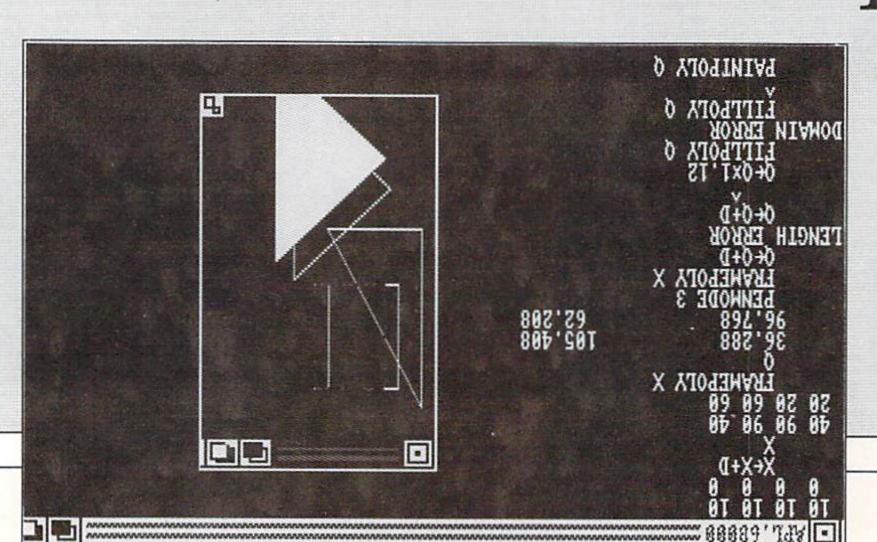
Now APL comes to the Amy in the those days, was called APL. the typical lack of imagination in programming language which, with squiggles became, a symbol-based exactly what Iverson's strange Programming Language and that's

The first manual is around 280 that. Well, size isn't everything. single disc. And it's only half full at two manuals, a set of stickers and a Open the excellent hard-box to reveal Ltd., and very well presented it is too. shape of APL.68000 from Micro APL

pages of just what it is that APL can

Variable types as APL sees them





and can support as many or as few of the usual gadgets as you require, although getting a border round the edge is a bit of a problem. Screens can be low or hi-res interlaced or no.

The functions supplied with APL.68000 include some to help set up screens and windows. At least, that's what they're supposed to do. They are also fairly reliable invitations for the guru to pay a visit. When they work, however, they

work very well. Functions are supplied to draw wireframe or filled shapes, at least as fast and as easily as in Basic. If more effort had gone into this

side of the software APL would have been more useful and valuable. It is a fair argument to say that it was designed to run on mainframes with lineprinters, but unless the existing technology is utilised it will have no place in the systems of tomorrow.

NTUITION eh? Can't live with it, seems to be the approach of APL.68000

When run from Workbench, APL

assumes a nice healthy amount of memory is available for its workspace. Then it runs into a few problems. It tries to grab too much and things go all slow and horrible. Closing a few windows will sort it out, but it's still a bit of a horror out, but it's still a bit of a horror drama situation if you have something important in ram. something important in ram.

The problem can be avoided if you run APL from the CLI instead.

Then you can decide exactly how much memory to set aside for it.

This memory is reserved for its workspace, where it keeps all the variables and functions. If you want to open a few windows from APL, or worse still set up a few screens, or worse still set up a few screens, or worse still set up a few screens, with enough memory to cope.

experience in APL. For a start there are no FOR–NEXT loops. APL tends to operate on a more interactive level. There are no listings. It's more like consulting the oracle than writing a program.

The nearest analogy I can think of is The leastest analogy I can think of is proless.

The nearest analogy I can think of i Prolog, which is used just as often in an interactive mode than in any set form.

That APL doesn't have loops is not a disadvantage. The whole ethos is away from that sort of structure. And why not? Think of a problem. Say you have a table of numbers and you want to find the maximum. How would you do it in Basic? A nested FOR–NEXT with a dummy variable holding the with a dummy variable holding the best so far? In APL this can be done with four symbols:

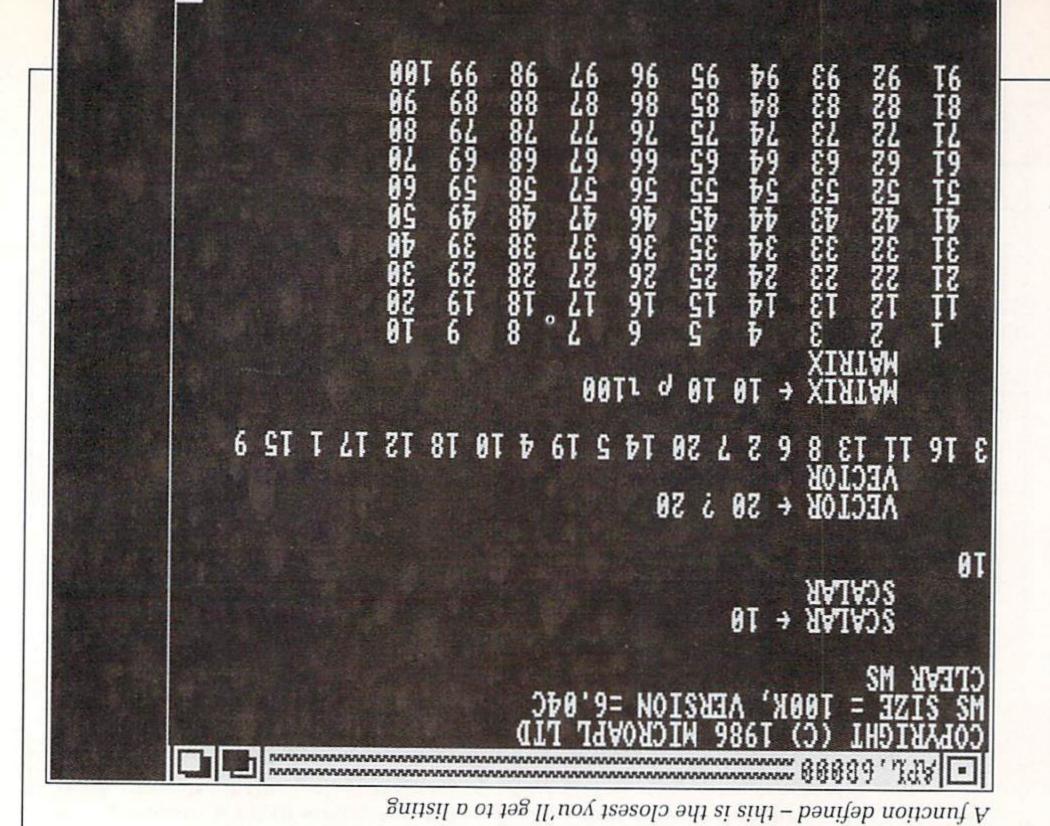
T0 |\ |\ X |X+33°35T0

where X is a variable containing the table of data. The first line sets up x as a three by three matrix full of random numbers. The little arrow pointing to the left assigns the function to the right to the variable. Like the LET right to the variable. Like the LET ommand in Basic but for grown-ups. The second reduces to the maximum by row and by column.

down programming. Instead of breaking a problem up into successively smaller problems and then coding it, the way of APL is to tackle the problem head on, as a complete task. A sort of holistic approach, you might say. If you can express the problem then you have the express the problem then you have the answer.

A variable in APL covers a whole range of data types. A scalar is just a single number, a vector is a string of numbers — like a one dimensional of numbers, a two or more dimensional vector. In fact APL will handle up to eight dimensions for a variable, though they get a little tricky to display on the screen (see to display on the screen (see Illustration 1).

A common criticism of APL is that it is slow. When you consider the speed as the time it takes to execute a statement this is true, but when you take into account the fact that one statement in APL can replace several lines of code in most other languages the comparison seems unjust. For example, consider the Deal function or example, consider the Deal function or example, consider the Deal function or assigns to the variable X the numbers



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usefulness in jeopardy. when faced with AmigaDos puts its features. Unfortunately bad habits A full version. Supports all standard

Sheed

language. Irrelevant in interactive mode. times as much as a line in any other slow, but an APL statement does 10 Hard to judge. Statement execution is

NVT OE

the features of standard APL are there. worthwhile for the professional, but all would be necessary to make it A far more powerful Amiga interface

%29

OVERALL

remedy this. down. Perhaps later versions will language, but intuition handling lets it yləvol a fo noitainəməlqmi boog A

statistical problems, but that isn't all it

language only for those who speak in strings as numbers though, so it isn't a

units. A simple program can work out APL to store the dimensions of all its One furniture design company uses

certainly possible to network it on the si ii rotelume lerminal emulator it is at the hobbyist, but with multi-tasking on a micro it is probably aimed more Admittedly, as an implementation

linguaphone record for APL. and Apache, see if you can get a interested in learning. Forget Swahili truly alternative language for those A must for serious nutters, and a

Obviously as a language it is more

81 91 PI ZI 01 8 9

Variables can just as easily be and scientists, not programmers. language for theorists, mathematicians can do. Its design gives it away as a biased towards mathematical and

floating point.

kitchen. which cupboards will fit in your

Amiga.

the numbers"B]9!:991M9iZEu5 This works out as four plus twice all containing any arithmetic sequence. operators to provide a vector with more conventional mathematical the argument. This can be combined

of numbers from one to the value of

one argument, it will produce a vector

Here the number 4 appears in position

5435114

or the position the variable to the right

argument form, it will return the index

symbols, like iota, the index symbol.

many more examples of very useful

Just one statement. How long would

This isn't an isolated case. There are

occupies in the variable to the left:

In one form, the dyadic or two-

that take you in Basic? Or C?

69174518832

randomly:

X+ TO 5 TO

one to 10 and shuffles them

other form, monadic or taking only

two of the vector to the left. In its



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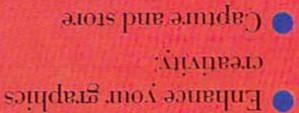


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The pros and cons of partitioning

as many files in one go. Each partition can be re-formatted separately, providing an instant backup facility. If the drive should get its knickers in a twist by some quirk of fate or an atwist by some quirk of fate or fariance.

AmigaDos, the damage, with a bit of luck, will be contained to one partition, allowing you to regain information from your backup partition.

There is always a drawback though. And it's a pig. Each partition will grab

And it's a pig. Each partition will grab a bit of ram for itself, usually about 30k. With three partitions, this leaves only 734520 free bytes on a 1 meg, only 734520 free bytes on a 1 meg,

THE ample instructions for the Xetec make a major point of partitioning your drive before you start any serious work on it. If you partition a drive you split it up into several parts (not physically of course) so that to the system it appears as though you have several separate drives.

Several separate drives.

Apart from the simple blessing of several separate drives.

immediately providing some sort of organisation, there are several other good reasons for doing this.

The greater the number of partitions, the greater the number of partitions,

the greater the speed of the drive because it doesn't have to sort through

Kickstart 1.2 owners also need to boot from floppy. you will need to perform an initial If you still have version 1.2 roms, then most A500s have in them these days. 1.3 Kickstart roms, which is what desk. The drive will auto-boot with even better on a shelf of a split level accidental kicking reach. It would fit

file on the floppy. the manual, but clearly mentioned in a in seed from from those in a jumper. Initial settings for the take apart the host adaptor and change

The drive comes ready-formatted, on the right sector, er, track. phone call to Third Coast soon put me understanding the diagrams, but a problems. I got in a muddle by misreading instructions, there are no connect everything without OR those who charge ahead and

startup-sequence. depend on the complexity of your 30 seconds, but this is always going to a usable Workbench is a shade under powering-up and being presented with immediate booting. The time between some utility software to allow complete with Workbench 1.3 and

and so to som a so the solution of expansion board, the host interface is capable of With the addition of an extra circuit

This device would be perfect if you meg of extra memory to be fitted. S to mumixsm a wolls ylno lliw 0ech For your reference, the Commodore putting strain on the A500's supply. take power from the drive instead of If you do have lots of ram, you can

the SCSI port. expand further if the need arises via darn fast, and always the ability to enormous amount of on-line storage, were running a bulletin board. An

ability to add a compatible tape drive would be very useful. Here, the video or sound or whatever, again this professional application, whether for For the Amiga to be used in a

> and connecting the cable between sanıd yanınay ndol plugging the host adaptor into place fastest available. from a euro-plug to a British 13 amp, is a matter of changing the mains lead әүі ѕр рәимоиәл On a Kickstart 1.3 A500, installation reveal a through connector. panel on the host unit to you can remove a side ons which use the bus, you have any other addthe money to spend. If of Commodore Business Machines, Inc assuming you have be added, SCSI devices may to seven more confidence. Up with connected csn be strange optical drives streamers and drives, tape that other day) means the time of no gnibnaqab 'Axəs SCOOZY OF 'Azznos (pronounced interface wow this A500. on the side of the very tightly to the bus interface which fits adaptor is a proper SCSI hard disc itself. The host player sized box containing the small interface unit and a large CD piece of hardware. It consists of a The Xetec Fasttrak is an impressive to a Xetec with a Quantum RLL drive. think 40 meg is a lot, but that's peanuts Really big. I mean, you might ICHTY-FIVE megabytes is big.

This cable is an incredibly useful

relegate it to the floor, well out of Your toes curl monitor on top of it, you could If you don't want to put your times that'll make a problem. discovers access somewhere to place the drive won't be two metres long, so finding bnp 002A sid otni

drive and host.

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hard drives are

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and records of transactions. names and addresses to inventories and catalogues and even invoices information. The type of data can be very varied, ranging from simple You can keep data files which are automatically sorted as you add

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You can design different ways of presenting the data, e.g. straight list, Keys.

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even the total number of fields. fields or the type of data to be stored or not concern yourself with the size of names for each data field - you need database file you merely need to enter wen a qu tee oT .zunem ezu ot elqmis All facilities are accessed from a few

reversed to allow you to correct mistakes easily. deletions / insertions are logged and may be Undo changes. The most recent data changes /

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rename, erase, copy, type, attribute alteration. File management screen with directory map,

the database, or to another variable. expression can be assigned to a field throughout variables (incl. running totals). The result of an expressions and rounding, using field contents and conditional 'sbuintsdus date calculations, provides Powerful expression evaluator

length and mask. given range, or a string subject to a maximum required to be integer, number or date within a Data entry verification. Fields may be

record almost instantly. layout or index from display mode, finds individual characters, convert to upper or lower case, change line that automatically move fields up or down, swap record, insert and overwrite mode, insert and delete Data editing with ability to duplicate an existing

characters. layouts, printer drivers supplied to print special keyboard configurable to 10 different national of accented characters including correct sorting, International compatibility includes full use

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Prodata - it is a powerful database But you do not need Protext to use

mouse, as required. may be used with the keyboard or a uses a simple set of menus which your filing applications. The program manager in its own right, ideal for all

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(512K memory + clock expansion). for special price for Prodata plus A501 meed 1MB to run Prodata - see below Amiga owners please note that you

Extra fields may be added at any time. files automatically extended as data is entered. line fields have word-wrap and justification.) Data record. Fields up to 999 characters per field. (Multi-Variable length fields, up to 300 fields per

indexes to change sorting method. may use supplementary sort fields, instantly switch Indexed files may have up to 10 indexes, which

justify, centring), printer attributes (bold, italic etc) scrolling, formatting of items (decimal places, wider and longer than screen sizes with automatic variable items, line drawing mode for boxes, layouts Rexible layout design includes field, text and

microspacing used to give correct output in margin sizes, multi-line headers and footers, use of printer control codes, options to set all Printing. Comprehensive set of printer drivers, full to 100 different layouts. attributes to join items. Duplicate layout facility. Up both global and on each item, special 'attach'

stored with descriptions, selectable from menu. Filtering of data using any expression. Filters printer or to a disc file. proportional fonts, background printing, print to

altered as it is imported. Selective importing allowing data to be checked and formats suitable for other software including Protext. Importing and exporting of data in different Individual records may be de-selected after filtering.

package, and at £79.95, it is most certainly "Prodata is a very sophisticated database

Displaying and entering data

[E]dit [F]ind [A]dd [C]opy [D]elete [P]rint e[X]port [I]ndex [L]ayout [4] Back [4] Next [40] First [40] Last [U]nselect [ESC] Quit, Opt->

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Protext Reg

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3/2/98

2777

13/8/88

TA 39 HBI

Use 6000 to move, Ad and AD to resize

Field 19*; Unit Cost 1

Field 16 : Order Ref

Field 14 : Contact

--- Field 12 : Telephone

--- Field 9 : Del Addr 3

Field 5 : Address 4 Field 4 : Address 3

Sel: ALL Layout; I Index; 0 15:23:22

--- Field 13 : Fax

Field 8 :

Field 6:

: 11 blai7 ---

: Bi bigii ---

Del Field

Field 18 : description 1 Field 17*; Quantity 1 Po

Field 15 : Invoice Mumber

Del Addr 5

Del Addr 4

Del Addr 2

Del Addr 1

Select field name

address labels, tabulated data.

Address 5

oll [s]

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MITS 201

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34 Hulberry Way

B D 7H

JIRO : 9MBN 9IdbinbV

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Invoice Address

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r.r nois19V

Hitton-under-the-Hill

Top left = (0,0), Pos = (3,17), Length=20,

Atina

PRODATA V1,00 (c) Arnor 1989 Printer (P13 EPSON Directory E:/PROD Open: ARHOR (16F) Recs: 3621 Sel: ALL Layout: 2 Index: 1 15

Designing a new layout

[F]ield [T]ext [V]ariable [L]ine draw [A]ttrs [D]el [E]dit [TAB] next;

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a lorra loot, but it's worth it. bytes-per-penny into consideration, it's Compared with other drives, taking VALUE.....

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noticeable indeed. sub-directory, the speed is very database, or copying across a large function on data stored on a large

including Guinness. digs for two terms at least, not of money I could have survived in right then, I'm tight) and for this sort value of money important to me (all student upbringing has made the a grand is not a lot of money. My anyone who tells you a fraction under But it's not cheap. Don't listen to

So at the end of the day, taking all Amiga hard drives on offer. as such, is in line with all the other multiplying the PC price by two and, conform to the rough formula of PC hard drives? Well, it seems to How does it compare to prices for

You bet I would. It's lovely. But want one? party has gone for a burton, would I things into consideration, when the

designed this hard drive will excel. I'll For the applications for which it is exchange, so it must be sent back. Third Coast won't take Green in part

miss it. It was nice. Very nice.

The Xetec's ruggedness impressed available from Third Coast. streamer is a must, and one is easily

Vortex. Arggh! work and took it home to use on my disaster. I was developing a program at me, brought home by a little domestic

utilities). goodness for hard disc back-up formatting to get it going again, (thank its toes up and died, needing a resimultaneously, and the Vortex turned My program needed six files open

The Xetec under review is really open the files in my ram disc instead. use at home, I changed the program to if nothing unusual was happening. For Meanwhile, the Xetec carried on as

Whether or not you would ever Vortex, or even more on a A590. Compare this to a time of 30 msec on a milliseconds (msec) and a 64k cache. fast, with a quoted access time of 11

than their usual vigour. all the icons popping up with more matter of conjecture, but I did notice notice this speed at first glance is a

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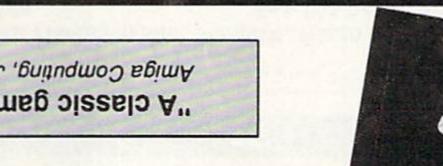
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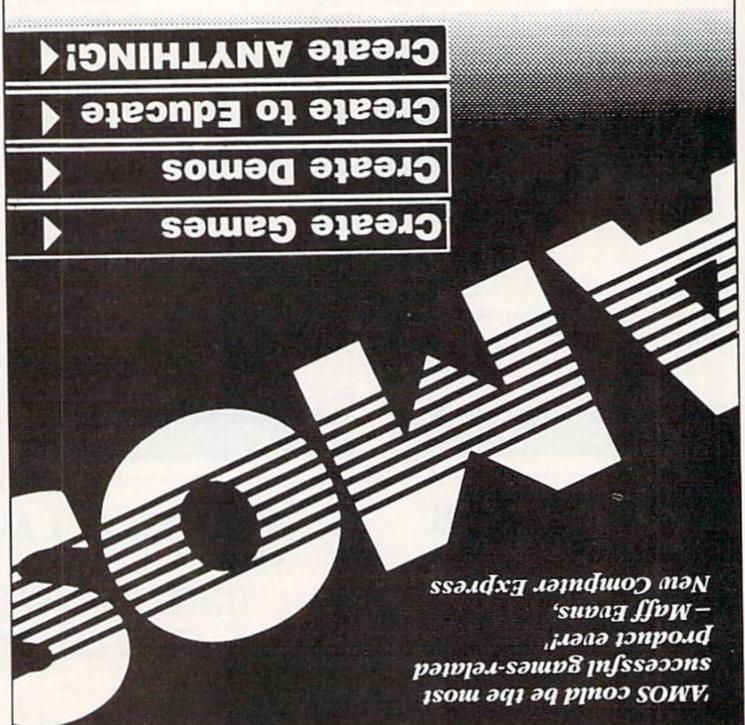
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from, a sampler can become a large music collection to borrow sounds grounds enough to ban them outright, 99 per cent of all demos. That's probably If the sampler didn't exist, neither would

although with some skill, a little panache and

Stewart C. Russell finds out a wonderful device - as

computer's memory. voltages and records them in the electronic circuit which measures House Music) it's actually a dull little

entirely unlike music. noise that is almost, but not quite, memory can be replayed to create a Aitken and Waterman, the portion of a tape player stumbling through Stock, If the voltage happens to come from

> ameg a rot yflevon a stiup saw ti / _ _ EMEMBER the 8 bit days when

instantly imparts musical skill (see being a magical device which wiser, it would create a stir for a game These days, now that we are older and discern the accent of sampled speech? software house to boast that you could to have sampled sound? For the

exclusively, Master Sound burps out the bits at 55.9 KHz, which is actually faster than compact discs are sampled. This makes for very sharp samples, but only Master Sound and a very few other packages will be able to replay them at the correct speed. The main Master Sound screen

looks like a cross between a CD player, an oscilloscope and a very cheap sci-fi movie – all silver buttons and drop

shadows.
A small oscilloscope on the bottom

right of the screen is used to set the input volume. Too quiet and the sample will hiss, too loud and it will buzz and click. Once the volume's set, you can start recording; a click of the mouse and whatever you've got plugged into the cartridge will start making a noise through the speaker.

Once you've sampled all you want—

or, more likely, run out of sampling space – you can replay your sample forwards, backwards, at speeds

chips. Most (middle aged) Amigas have only 512k of ram that the sound chip can talk to, so samples were of a limited length, around 130k.

By using the main processor to

throw memory at the sound chip,
Master Sound can use as much fast
ram as you can get – yes, up to 8
megabytes of sampling space! I only
found one sample player that could
handle these overlong samples, so
they are best kept for use with Master
Sound.

Paula can only replay sampled sounds at a maximum of 28,000 samples a second (28 KHz), but she requires no intervention from the processor. By using the processor

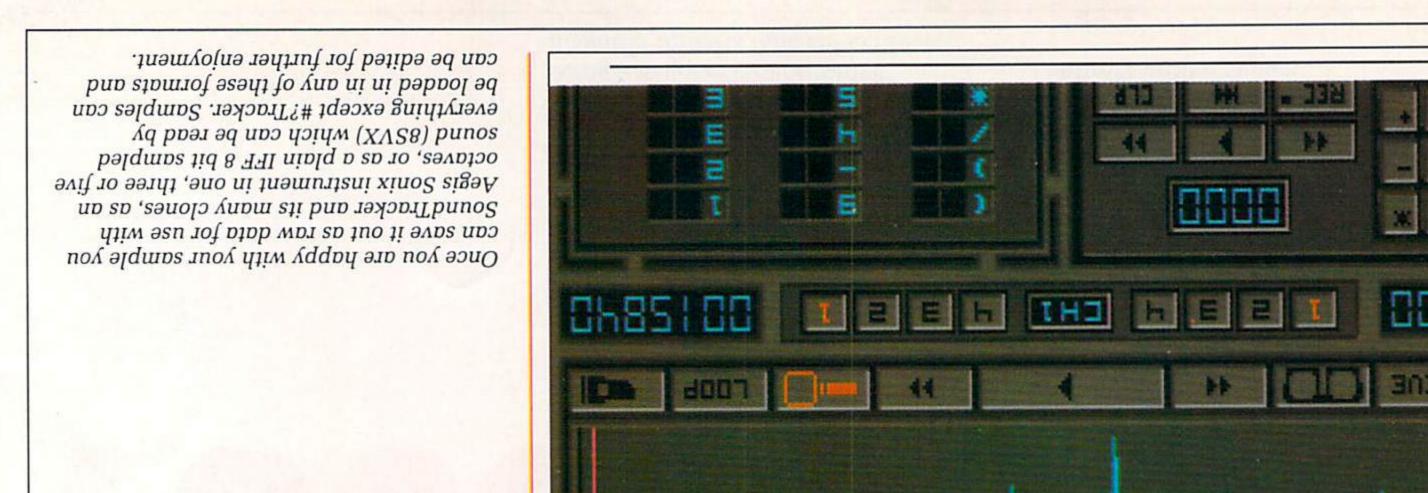
The faster the sampler stores the voltages, and the larger the number of bits used to represent the voltage, the better the sample quality. Or not, as in the case of Stock, Aitken and Waterman.

Master Sound is a clever little sampler from a bunch of guys who have been making waves with their samplers for the ST. It can do two technically impossible things – it can sample to fast ram, and it can sample and replay faster than Paula, the sound chip, can handle.

Fast ram, which is present on machines with more than 1 meg, cannot be accessed by the custom

Master Sound includes a real time sample sequencer. This allows 18 samples to be stored in memory and recorded to create a four channel sequence. This sequence can only be edited by ear and must be produced in real time. It's not very easy to use. Sequence fiends would be well advised to go for a PD sequencer like MED (Fish Disk 255), an AmigaDos-friendly SoundTracker clone which also loads IFF sounds.

For reasons known only to the authors,



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already used "Is it real or is it Master The advertising types have probably more expensive samplers.

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seconds to complete.

deck; no problems. The seqencer, The sampler works just like a tape EVSE OF USE...

and all the functions take a very few Very high sampling rates are possible SPEED however, stinks.

that we can live without. about the best quality. No stereo, but Just about the cheapest sumpler. Just NALUE

OVERALL %86

Master Sound. It's cheap and it works

Those about to sample, should have

extremely well. Recommended.

basket. like it has been buried in a laundry sample beautifully or make it sound

itself and the Amiga. Be careful. came off it would probably fry both Although it's a good fit, if the sampler and isn't secured to the machine. good four inches from the parallel port although quite small, sticks out by a The Master Sound cartridge,

Samplers in Master Sound's price changer to use Master Sound. as usual, have to make use of a gender you are sampling. A1000 owners will, to say goodbye to Mr. Printer while There's no through port, so you'll have the sampler sticks out even more. a tape or CD deck. Once that's fitted, to connect it to something like OU'LL also need to buy a cable

and accuracy usually found on far samples which replay with a clarity Sound creates beautifully clear and where you run cables, Master you are careful with volume levels bracket are usually dire. But as long as

> Considerable simple enjoyment can or in an infinite loop. ranging from 3 KHz to 55.9 KHz, once,

More serious work involves cutting, is hidden in back-tracks. playing things backwards to see what Perky come back, all is forgiven) or be had speeding things up (Pinky and

samples. you get at the ends of badly cut in/out on a sample to reduce the click volume levels and putting a fade filtering out unwanted noise, boosting overlaying and reversing samples,

Because Master Sound samples in level - great for ignoring lead-ins. the input volume exceeds a user-set The software can start recording once and too much volume just makes fuzz. thicker and thicker layers of socks, much filtering hides the sound behind These all work well, although too

machines, can either clean up a filter. This filter, not present on A1000 you're at it, toggle the Amiga's built-in to the left or right speaker and, while mono only, you can redirect the sound

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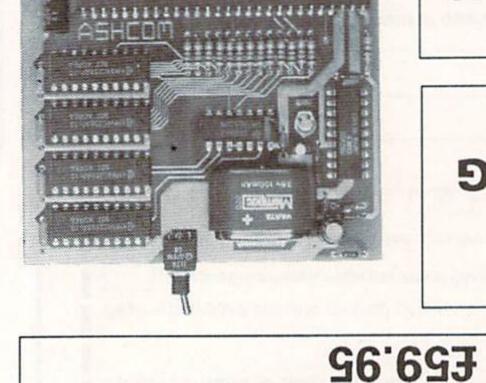
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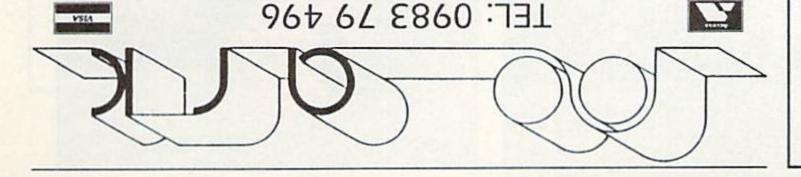
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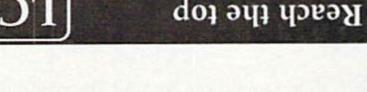
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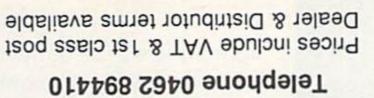
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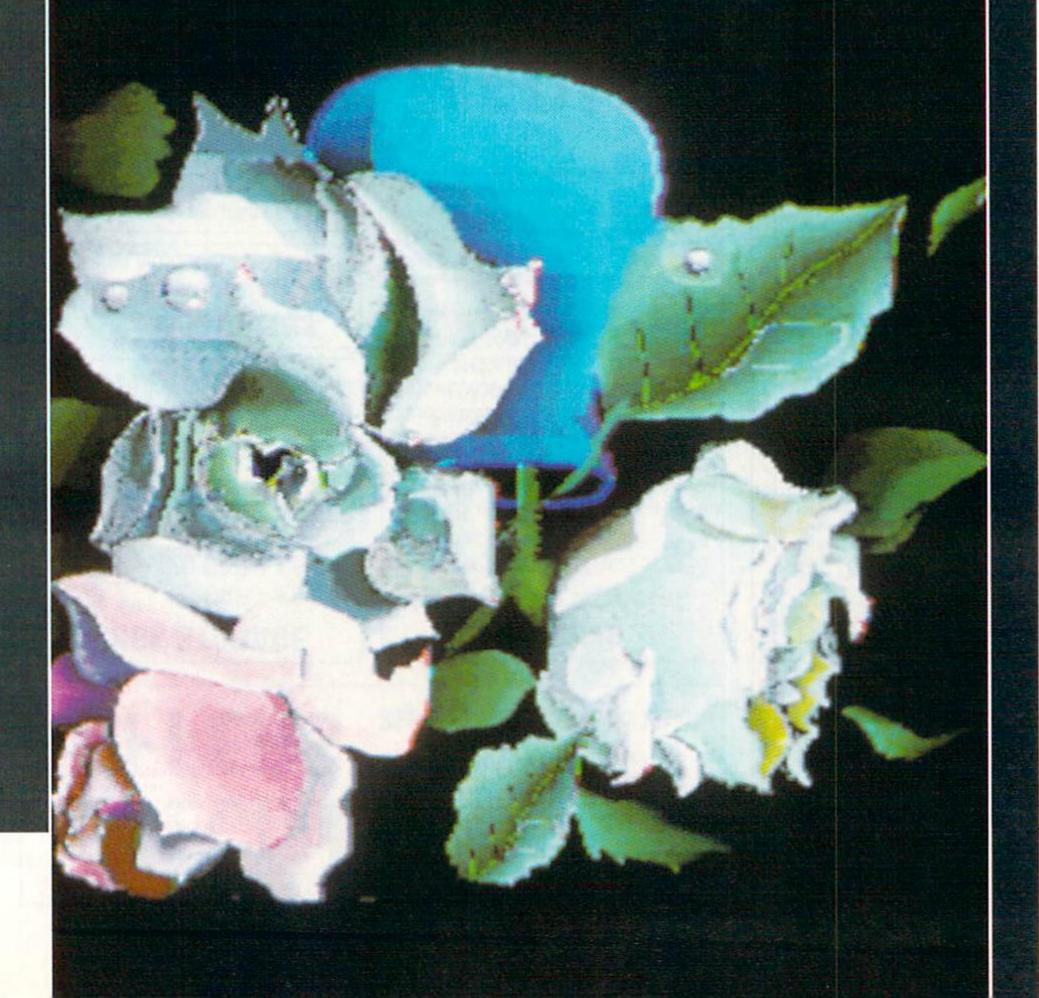
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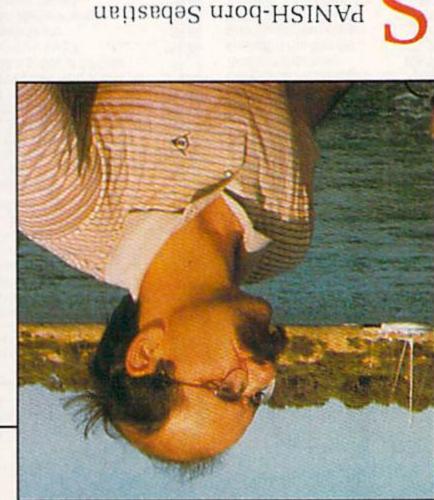
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presently working in a school in Stockholm ever since and is years ago at the age of 27. He's lived Marquez moved to Sweden 15 PANISH-born Sebastian

do, they enjoy it more if it can be what Sebastian asks his pupils to maths in that order. But no matter painting, word processing and classroom, which is used mainly for They have an Amiga in the teaching 11-year-olds.

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Sebastian used to paint on canvas

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Sebastian's only talents, for he likes Painting and teaching are not you can manipulate it. finished, he says it is a dream how before. But once the painting is difficult and time consuming as canvas, and admits that it is just as colours exactly as he used to on his media. He mixes and uses and the HAM computer screen as recently defected to Photon Paint had many exhibitions, but has in oil and pastel, with which he has

Captain Pugwash. employ to produce animations like same techniques that professionals around on a choppy sea using the he makes the moored boats bob paintings. In one of his animations step further and animate his nothing better than to take things a



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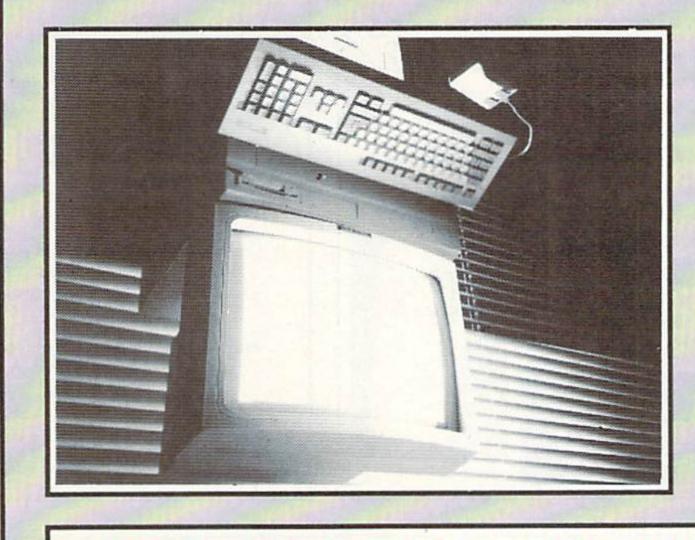
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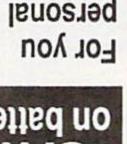
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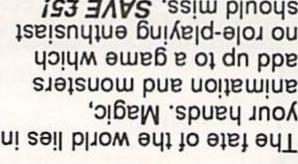
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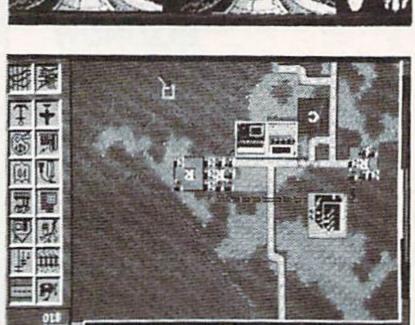
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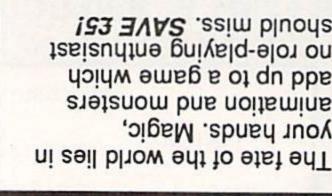
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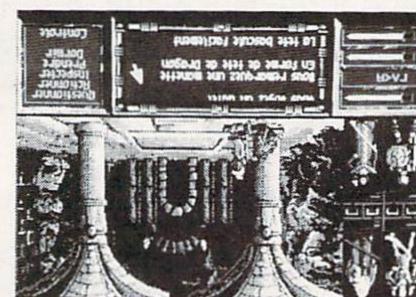
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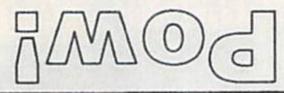
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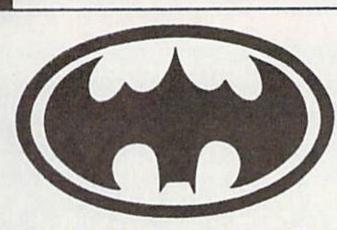
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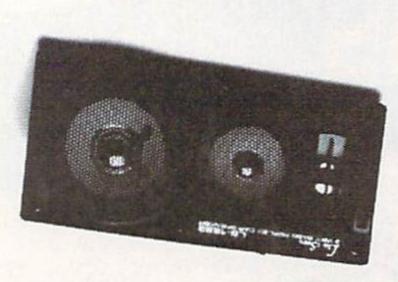
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those as letters, like PSS. nounced as words, like MIPS, and those acronyms which are protion again, always pay attention to

MaxiPlop IV has you completely the effect that the PRS of the latest him up is to make a comment to is too long, the best way to shut JMC sid to ATTM off that Indining some fat-headed show-off comever find yourself sitting opposite with original ideas go far. If you Computing is a field where those Always feel free to be creative.

sqolqixaM tadt serge bna yllul sive knowledge, he will nod wistthe existence of a gap in his exten-Totally unable to acknowledge

> close friends. practised in the safety of a group of like SCSI is always tricky and best correct pronunciation of something pronounced "teck". Picking up the guage is written TeX, it is actually although the text description lanately spot his terrible mistake; Those in the know will immedi-

text to use RAM, LAN, CPS know exactly in what connov sure you properly. Be sure you beyolqme ad of si nog / paramount importance if jar-(three letter acronym), is of The acronym, particularly the TLA

> and says, "Have you seen version particularly pretty young hackette when he leans across the bar to a user will be dropping a real clanger pronunciation. The casual jargon lacks the crucial information on and magazines is very useful, but

> "fx9T lo 4.6

It's a relatively easy task for jargon for every two normal words. the bar and speaking one piece of business is a matter of standing at known your many years in the information rapidly. Making confuse the beginner as to convey puter world. It's used as much to very important part in the com-ARGON has always played a

someone who knows what he is copper flags, and be taken for ing flicker fixer to his interlaced interfacing his MNP error-correctjargon, to speak rather loudly about computing, but a good memory for someone with little knowledge of

talking about.

dent of passing as a professional. information you need to be confithis jargon jungle, providing all the Computing can guide you through Always ready to assist, Amiga ing his next social appearance. would do well to avoid when makthe would-be programming genius However, there are pitfalls that

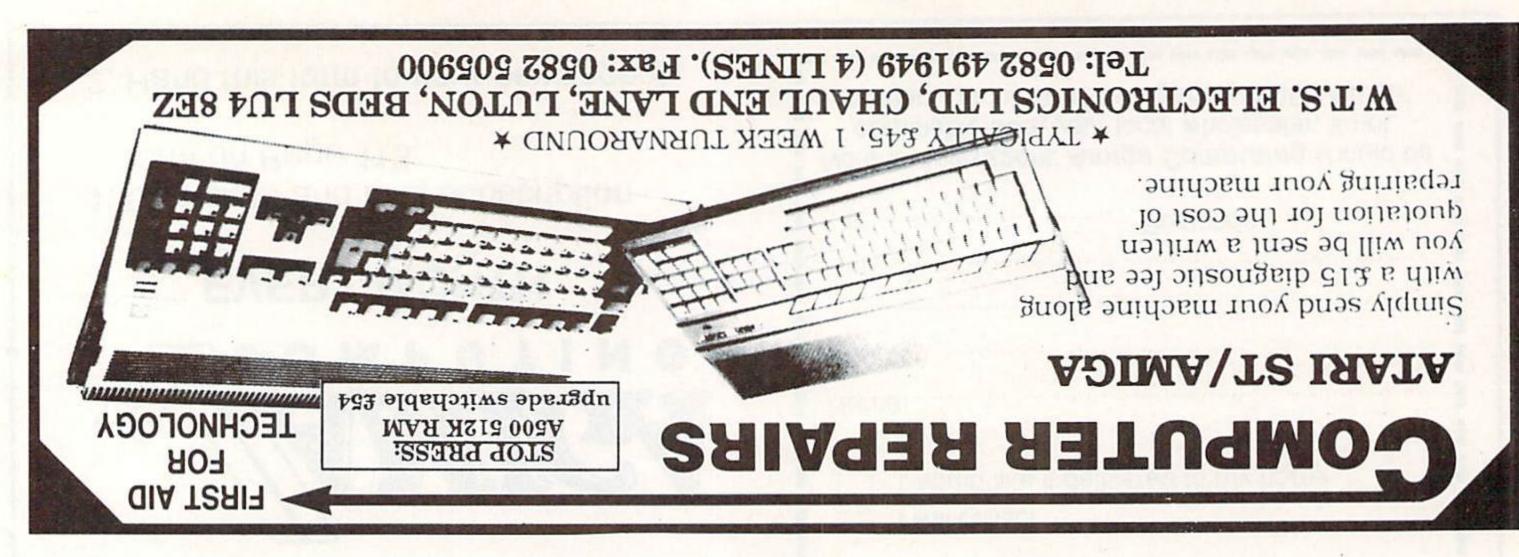
ideas and products are surfacing all exciting and dynamic that new dynamic world of computing is so totally up-to-date. The exciting and The first lesson is always to be

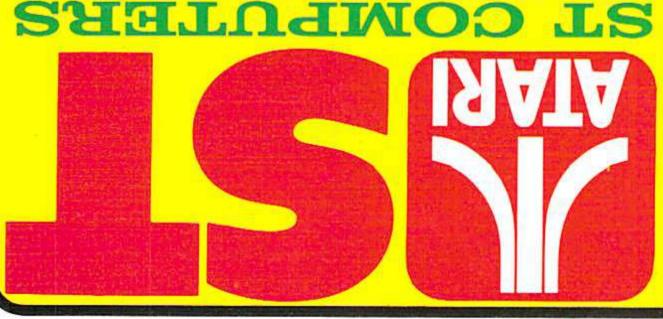
ing cheese. -tae bna sleedw ni bnuora gninnur known as small squeaking rodents looks. Even mice were still safely least, have earned you some funny next real thing would, at the very Wimp environments were to be the Five years ago, proclaiming that

Architecture and Interactive Video as Unix, Open Structured into the conversation words such transputer and Lisp. Instead, drop already history, along with the gain you any street cred - they are Using such words now will not

Picking up jargon from books Realities.

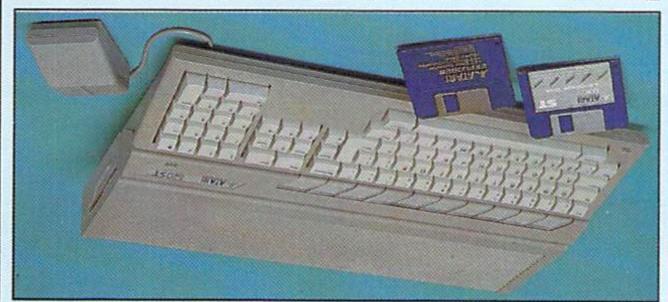






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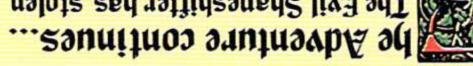
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